Napoleonic Administrative Reforms and Development. Lessons from the Italian *Mezzogiorno*

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Giulio Cainelli,
Carlo Ciccarelli,
Roberto Ganau

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NAPOLEONIC ADMINISTRATIVE REFORMS AND DEVELOPMENT. LESSONS FROM THE ITALIAN *MEZZOGIORNO*[*]

GIULIO CAINELLI

University of Padua (IT)

CARLO CICCARELLI

University of Rome "Tor Vergata" (IT), and CAGE–Warwick (UK)

ROBERTO GANAU[**]

University of Padua (IT), and LSE (UK)

Abstract

We study how changes in the administrative hierarchy of a country affect development at the city level. We exploit the 1806 Napoleonic administrative reform implemented in the Kingdom of Naples as a historical experiment to assess whether district capitals endowed with supra-municipal administrative functions by law gained an urban development premium compared with non-capital cities. We assemble an original dataset combining historical data from 1648 to 1911, and rely on difference-in-differences and instrumental variable estimation strategies. We find that district capitals recorded a time-persistent population growth premium in the period 1828–1911, and experienced higher industrialization both before and after the Italian unification occurred in 1861, compared with non-capital cities. We explain our results through mechanisms related to public goods provision and transport network accessibility. (JEL: H11, N13, O11, R11)

Keywords

Napoleonic reforms; territorial administrative hierarchy; long-run development.

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1. Introduction

A few recent studies have analyzed the effects of administrative reforms on state-building capacity, economic development, and urbanization.[1] In this paper, we exploit one of the most ambitious state-building and reform processes occurred in Europe in the first half of the nineteenth century (Croce 1925; Davis 2006), that is, the administrative reform implemented in 1806 by the Napoleonic authorities in the Kingdom of Naples, as a historical experiment to analyze the effects of a radical reform on long-run development. The Napoleonic reform established, for the very first time, the division of the 12 "historical" provinces of the Kingdom of Naples into 40 districts—that is, intermediate geographical-administrative units between the province and the municipalities—within which a city was selected on the basis of its "spatial centrality" as the district capital. The identification of the districts and the selection of their capitals by the Napoleonic authorities was one of the major innovations of the 1806 reform.

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1. A central government can set up the administrative geography of a country by establishing new sub-national administrative units with their capitals, or can reshape the administrative hierarchy at the spatial level by increasing (through a decentralization process) or reducing (through a centralization process) the administrative functions assigned to sub-national administrative entities (World Bank 2000; Bardhan 2002; Faguet 2014). More recently, the economics literature has investigated such reform processes. Bo (2020) studied the effects of the 1983 Chinese political-administrative reform using prefecture-level data for the period 1983–2003 and a difference-in-differences (DID) estimation strategy. He found that the reform, designed to decentralize government powers from counties to cities by creating prefecture-level cities with more political-administrative functions, stimulated the industrial productivity of these newly established cities. Further, Bo and Cheng (2021) studied the impact of the same reform on urban primacy through a DID estimation strategy and found that capital counties—where prefecture-level governments were located—benefitted from this reform by experiencing a faster increase in the non-agricultural population compared with peripheral counties. By exacerbating the disparities between capital and peripheral counties, the 1983 reform significantly accelerated the urbanization process in China. These results are confirmed by Jia, Liang, and Ma (2021), who found that the municipality of Chongqing experienced a significant increase in economic growth after its promotion to a province-level municipality in 1997. Becker, Heblich, and Sturm (2021) exploited the 1949 relocation of the West German government to the city of Bonn as a historical experiment to investigate the effects of Bonn's change in status on its public and private employment. They found that Bonn experienced a significant increase in public employment and a relatively small increase in private employment. Faggio, Schuler, and vom Berge (2022) extended the analysis of Becker, Heblich, and Sturm (2021) by focusing on the relocation of the German government from Bonn to Berlin in 1999 and found that this relocation had positive effects on private employment mainly due to growth in services. Bai and Jia (2023), using a panel dataset for 261 Chinese prefectures and exploiting exogenous variations driven by six different dynasty changes during the period 1000–2000 C.E., found that changes in the provincial capital status shaped the regional development of prefectures, as measured by urbanization and population density. They also revealed that the political-administrative hierarchy affected regional development not only through an increase in public employment but also through the development of transport networks and infrastructures. Finally, Chambru, Henry, and Marx (2022) showed that the selection of new department capitals—where administrative functions were concentrated—during the French Revolution significantly affected the state-building process, population dynamics, and economic development of these cities.

We exploit the exogeneity in the selection of the district capitals to empirically assess whether the municipalities that experienced such a status change gained a development premium due to the acquisition of supra-municipal administrative functions by law and, therefore, to becoming "centers of power" at the local level. We assemble a large and original dataset combining historical data at the municipality level from 1648 to 1911, and rely on DID and instrumental variable estimation strategies to analyze development at the city level in terms of both population dynamics and industrialization up to the year 1911.[2] We find that district capitals gained a time-persistent population growth premium compared with non-capital municipalities. We also find evidence of higher industrial development in district capitals compared with non-capital cities both before and after the Italian unification occurred in 1861. Finally, we explain our results through mechanisms related to the provision of public goods and accessibility of transport networks. We find that district capitals tended to provide more public goods to the local population and were more connected to the railway network.

Our paper is related to different streams of the literature. The first concerns the state capacity and its role in influencing economic development (Besley and Persson 2011). A basic dimension of state capacity is bureaucratic and administrative capacity (Savoia and Sen 2015; Acemoglu and Robinson 2019)—that is, the ability of an administrative system to design and implement policies for delivering benefits (Acemoglu et al. 2011) and services to households and firms (Besley and Persson 2009, 2011; Acemoglu and Robinson 2019). While this dimension of state capacity has been widely investigated in terms of skills, competences, and abilities of an administrative system to achieve its objectives (Evans and Rauch 1999; Rauch and Evans 2000), the literature has only recently focused on the effects that radical changes in this dimension can have on economic development (Bo 2020; Bo and Cheng 2021; Jia, Liang, and Ma 2021; Chambru, Henry, and Marx 2022). The second literature stream, closely related to the previous one, concerns the effects of Napoleonic reforms. At the beginning of the nineteenth

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2. The sub-national administrative unit of the district was abolished by the Fascist regime with Royal Decree No. 1 of January 1927 in line with a more centralist political-administrative management of the state (Melis 2018). However, we selected 1911 as the last year of analysis due to data availability constraints as well as to avoid our analysis being influenced by effects related to the entry of the Kingdom of Italy into World War I, which occurred in May 1915.

century, the French Revolutionary armies introduced radical innovations—such as *Code Civil*, the commercial and criminal law codes, and the abolition of guilds and feudalism—in numerous countries, such as Germany, Spain, and Italy (Davis 2006; Acemoglu et al. 2011; Buggle 2016; Dincecco and Federico 2022). Only recently, a few studies have recognized the importance of these reforms on current economic, social, and cultural outcomes (Acemoglu et al. 2011; Buggle 2016; Dincecco and Federico 2022). Napoleon's armies also brought a new model of state administration, that was "imposed" on certain European regions (Ongaro 2008).[3] The reform of the administrative systems, based on the "French model," not only originated in the so-called Napoleonic administrative tradition (Ongaro 2008; Peters 2008) but also affected the process of state-building and economic development of certain European countries.[4] To the best of our knowledge, no study has analyzed the economic effects of the Napoleonic administrative reform in a country other than France. Only Chambru, Henry, and Marx (2022) study these effects in terms of state-building and economic development, referring to France immediately after the 1789 Revolution.

The third stream of literature concerns the role of local institutions in shaping urbanization (Ades and Glaeser 1995; Henderson and Becker 2000). Ades and Glaeser (1995) suggest that the spatial proximity to political and administrative institutions—and, more generally, to the "centers of power"—tends to increase the influence of politicians who live and work in capital cities. This "proximity" induces governments to transfer resources to these cities, thereby attracting workers, firms, and new business activities. Accordingly, a relationship between the centralization of political and administrative functions in capital cities and processes of urban concentration of economic activities can emerge (Becker, Heblich, and Sturm 2021; Faggio, Schuler, and vom Berge 2022).

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3. The French administrative model was based on three principles (Stevens 2003): the homogenization and standardization of the system on the basis of the revolutionary principles of equality and abolition of all local privileges; the centralization of powers; and the development of a bureaucracy—that is, a body of officials and civil servants in salaried posts.

4. The Napoleonic administrative tradition is generally defined as a historically based set of traits, such as administrative values, norms, structures, and practices regarding the functioning of local and national institutions in a country (Ongaro 2008; Peters 2008, 2021).

The fourth stream concerns the "administrative unit proliferation" hypothesis (Grossman and Lewis 2014; Grossman, Pierskalla, and Dean 2017) and the "administrative urbanization" theory (Liu, Yin, and Ma 2012; Zeng, Zhang, and Xu 2016; Yin and Liu 2017). Since the mid-1990s, both developing economies (e.g., Sub-Saharan African countries) and more advanced countries (e.g., China, Brazil, Hungary, Indonesia, and Vietnam) have significantly increased the number of sub-national administrative units and, accordingly, the number of administrative centers. The main aim of these policies was not only to increase the level and quality of public good provision for citizens and firms (Grossman, Pierskalla, and Dean 2017) but also to stimulate the overall economic growth at the sub-national and country levels (Bai and Jia 2023).

Finally, our paper is related to the literature on the origins of the Italian North-South divide (Federico, Nuvolari, and Vasta 2019). While this literature has attempted to identify the historical roots of this persistent gap in terms of social capital (Putnam, Leonardi, and Nanetti 1993), distance to foreign markets (Cafagna 1989; Missiaia 2016), quality of institutions (Di Martino, Felice, and Vasta 2020), literacy rates (Cappelli and Vasta 2020; A'Hearn and Ciccarelli 2021), and the presence of criminal organizations (Lupo 2004; La Spina 2005), among others, not much attention has been given to the analysis of the sources of growth differentials within the Italian *Mezzogiorno*.

Our contribution to the literature is fourfold. First, by exploiting the 1806 Napoleonic reform as a historical experiment, we show how an administrative reform "imposed from outside" produced long-lasting effects in terms of urban development and economic geography by reshaping the administrative hierarchy of a country at the spatial level. The purpose of this reform was to establish the administrative system of these territories in accordance with an "external model" based on the principles of the Napoleonic administrative tradition (Peters 2008, 2021). The reform was not aimed at fostering urbanization and economic development in the Italian *Mezzogiorno*; these aspects were a byproduct of the reform. Its main goal was to implement a different "model" of state and administration (Davis 2006)—that is, a different "view" on what a state, its administrative institutions, and its bureaucracy

should do and how they should be organized. In this sense, our analysis may be of interest not only for historical reasons but also for the debate on the long-term economic consequences of administrative reforms (Acemoglu et al. 2011) and, more generally, of state-building processes (Acemoglu and Robinson 2019). Second, we show how the effects of the Napoleonic administrative system were further accentuated in the aftermath of Italian unification after the approval of the so-called Lanza Law in 1865, which assigned new and increased administrative functions to district capitals, thereby intensifying an already existing duality between capital and non-capital cities. Third, we identify mechanisms related to the provision of public goods and accessibility of transport networks to explain the divergence between capital and non-capital cities in terms of development. Finally, we draw policy implications that would likely be useful in designing economic development strategies in transition and developing countries where the process of administrative (re)organization is not yet complete and where cities and urban agglomerates are still evolving.

The remainder of the paper is organized as follows. In Section 2, we present the historical background and then describe the 1806 Napoleonic administrative reform and its subsequent historical evolution. In Section 3, we present the empirical setup and the identification strategy. In Section 4, we present the empirical results on urban development, and in Section 5, we provide further evidence on industrial development. In Section 6, we discuss and analyze the underlying mechanisms. In Section 7, we conclude and draw policy implications.

2. Historical Background

2.1. The Napoleonic Administrative Reform

The entry of the French Revolutionary army into Naples on February 15, 1806, brought a new "view" regarding the organization and functioning of a modern state (Davis 2006). Joseph Bonaparte, brother of Napoleon and King of Naples between March 1806 and July 1808, deeply reformed the administrative apparatus of the Kingdom of Naples—a state extending over the Italian *Mezzogiorno*, whose birth goes

back to the late thirteenth century (Davis 2006; Galasso 2007)—by implementing the French model that was established during the French Revolution and then further developed during the Napoleonic period (Peters 2008, 2021).

The Napoleonic reform of August 1806 marked the transition from a sovereignty based on feudality and its privileges (Palmarocchi 1914; Villani 1986) to one based on the homogenization and standardization of administrative norms, practices, and structures (Peters 2008) as well as the establishment of an administrative system structured on different geographical layers (Spagnoletti 1990). Two laws played a key role in this process: Law No. 130 of August 2, 1806, which abolished feudality, and Law No. 132 of August 8, 1806, which introduced a new administrative arrangement. With the implementation of these laws, the Italian *Mezzogiorno* became the scene of one of the most ambitious reform processes in Napoleonic Europe in the first half of the nineteenth century (Croce 1925; Davis 2006).[5]

Before the 1806 Napoleonic administrative reform, the Kingdom of Naples was divided into 12 "historical" provinces, a territorial division established centuries ago (Galasso 2007). During the Bourbon rule that began with King Charles in 1734, the presence of the state in these provinces was concentrated in the capital cities where the judicial courts were located (Giustiniani 1797, Volume I).[6] Except for the judicial function exercised in provincial capitals, administrative powers at the local level were distributed among a plurality of actors, such as feudal lords, religious orders, and aristocratic families (Spagnoletti 1990).

This picture radically changed in the summer of 1806. On the basis of Law No. 132, the Kingdom of Naples was divided into 13 provinces, each with its own capital. The new province of Naples was established by detachment from the province of *Terra di Lavoro*; the province of *Abruzzo Ulteriore* was

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5. This was confirmed by Pietro Colletta, an officer and administrator of Murat's bureaucracy, who stated how "never has a society witnessed greater upheaval or greater transformation in so short a space of time than the Kingdom of Naples at the beginning of the nineteenth century" (Colletta 1848, p. 214, translation in Davis 2006, p. 161).

6. These provincial courts, also called *Udienze Provinciali*, were presided over by a chief called *Preside*.

split into the two provinces of *Prima d'Abruzzo Ulteriore* and *Seconda d'Abruzzo Ulteriore*; and the province of *Contado del Molise*—which, in the pre-Napoleonic period, was formally independent from but administratively dependent on the province of *Capitanata*—was formally united with the province of *Capitanata*. With only these exceptions, the provinces that were part of the Napoleonic reform overlapped geographically with the Bourbonic ones—that is, a substantial homogeneity in terms of geographical boundaries between the "old" provinces, inherited from the *Ancient Regime*, and the Napoleonic provinces was maintained (Spagnoletti 1990). However, the actual structural innovation of the 1806 reform was concerned with the division of the 13 provinces into 40 districts, within which a municipality was selected as district capital.[7] Following the Napoleonic administrative tradition (Peters 2008, 2021), the district was designed as an intermediate geographical-administrative unit between the province and the municipality.[8]

A key feature of this reform concerned the criteria adopted by the Napoleonic authorities for the selection of district capitals. These criteria were not guided by the presence of pre-existing urban or administrative functions.[9] Since one of the goals of the Napoleonic authorities was to "aggregate a territory around a center" (Spagnoletti 1990, p. 89), the criterion adopted for selecting a district capital was its "spatial centrality." The limitations and weaknesses of the road network and related infrastructures in the Kingdom of Naples (Ostuni 1987) as well as the presence of natural obstacles such as rivers, streams, and mountains justified this selection criterion. In other words, the ease of travel and

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7. The municipalities of the Kingdom of Naples were historically called *universitates*. In particular, feudal *universtitates* were governed by a feudal lord, while state-owned *universitates* were governed directly by the King (Galasso 2007; Borghi and Masciandaro 2023).

8. The Napoleonic authorities established another sub-national unit in the Kingdom of Naples—that is, the *governo*. This unit generally included only few municipalities (in many cases, only one municipality) and was assigned exclusively judicial functions: indeed, according to Article 1 of Law No. 14 of January 19, 1807, the *governo* was the seat of a local judge.

9. Before the Napoleonic reform, these functions did not exist *de facto*: "the municipalities of the *Mezzogiorno*, unlike those of Central and Northern Italy, did not exercise any real form of government over the surrounding territory" (Di Ciommo 1987, p. 365, our translation).

communication between the center and the periphery was generally considered the main "requirement" for becoming the seat of the district.[10]

Between 1806 and 1811, there was fierce competition among the municipalities of the Kingdom of Naples that aspired to become district capitals. This phenomenon can be understood in relation to the advantages of the new administrative functions assigned to these cities by the 1806 law. A few of these benefits concerned the concentration in these cities of officials, civil servants, policemen, and soldiers who could ensure a higher level of public safety and protection not only for the citizens but also for the industrialization processes of these urban centers.[11] A historical example can help to better clarify these mechanisms. *Eboli* and *Campagna* were two municipalities of the province of *Principato Citeriore*, which had a population of 4,175 and 6,744 inhabitants, respectively. In October 1815, the Provincial Council decided that the new capital of one of the four districts of the province of *Principato Citeriore* should be *Eboli*. The citizens of *Campagna* protested strongly, indicating that *Eboli* was not only more decentralized but also had a worse climate and insalubrious waters (Spagnoletti 1990, p. 91). In those years, it was evident that the possibility of becoming a district capital would have brought economic prosperity, public safety, population growth (Caldora 1960) and, not least, political prestige (Spagnoletti 1990).

The administrative geography of the Kingdom of Naples underwent a few changes during the Napoleonic period. First, Law No. 189 of September 27, 1806 provided that the province of *Contado del Molise* would become formally independent from the province of *Capitanata* and gain administrative autonomy. Even after Joseph Bonaparte was replaced by Joachim Murat—brother-in-law of Napoleon and King of Naples between August 1808 and May 1815—this process continued. In fact, Decree No. 922 of May 4, 1811 marked the completion of the process of defining the 14 provinces of the Kingdom

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10. This choice was rationalized by the Napoleonic authorities with the idea that a capital city should generate "the greatest convenience or least inconvenience to the population ... of the district" (ASN, II fs. 734, in Spagnoletti 1990, p. 96, our translation). Not surprisingly, a similar solution was adopted during the French Revolution where the creation of administrative units, such as departments and districts, was based on two principles: "the centralization of administrative functions and easy access of all citizens to the capital in no more than a day" (Chambru, Henry, and Marx, 2022, p. 6).

11. Brigandage was a widespread phenomenon in many of these cities (Spagnoletti 1990).

and provincial capitals; it also provided for changes in the number of districts into which provinces were divided as well as their capital cities. The upper panel of Table A1 (Online Appendix A) summarizes the evolution of provinces and provincial capitals in the pre-Napoleonic and Napoleonic periods, while Table A2 (Online Appendix A) summarizes the evolution of districts and district capitals in the Napoleonic period of 1806–1815. In this period, the number of districts and district capitals increased from 40 to 49: certain municipalities became district capitals, as certain districts were created *ex novo* through a process of territorial reorganization, while other municipalities within existing districts simply underwent a change in status.[12]

This process of reforming the administrative geography of the Kingdom of Naples was accompanied by the definition of new supra-municipal administrative functions assigned to provinces and districts, thereby shaping the new administrative hierarchy of the country at the spatial level. Civil and financial administration (including tax collection) as well as police and public security functions were managed at the provincial level by the Intendant (equivalent to the French Prefect), who was directly appointed by the King.[13] The Intendant was also required to organize a biennial visit in her province to collect information, identify specific needs, and propose possible solutions to existing problems to the central government.[14]

At the district level, the main official was the Sub-Intendant, who was appointed directly by the King and whose seat was located in the capital city of the district. Similar to the French Law of 28 *Pluviôse*, year VIII, Law No. 132 of the Kingdom of Naples stated that the Sub-Intendant was "charged

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12. It is worth clarifying that a provincial capital city was also the seat of its own district.

13. According to Law No. 132 of August 8, 1806, the functions attributed to the Intendant in relation to civil administration concerned all those attributed to the Ministry of Internal Affairs by Decree No. 56 of March 31, 1806. These functions covered a wide range of activities, such as the management of prisons, hospitals, and charities; the maintenance of roads, bridges, and ports; the regulation of economic activities (agriculture, industry, and trade); education (schools and universities); and the collection of statistical information on economic activities and population. For all these functions, the Intendant depended on the Ministry of Internal Affairs. In relation to police and public security activities, Intendants had Gendarmerie and Provincial Guards at their disposal.

14. The other two institutions that were established by this law were the Intendancy Council and the Provincial Council. The Intendancy Council, comprising three members, dealt with tax (allocation and exemptions) and public procurement matters. The Provincial Council, comprising 15–20 members, dealt with the distribution of duties among the districts in the province and was in charge of the provincial budget.

with executing and enforcing the orders she shall receive from the Intendant and giving her opinion on grievances and petitions" (Title III, Article 2, our translation) coming from the municipalities of the district. Even if the Sub-Intendant played a minor role and was dependent on the decisions of the Intendant ruling the province of reference, she brought the state presence into the district and, in particular, into the district capital (Spagnoletti 1990). In fact, along with the Sub-Intendancy, officials, soldiers, policemen, and civil servants arrived in the district capitals to support the activities of the Sub-Intendants—a state presence that was never witnessed in the Kingdom of Naples before the Napoleonic administrative reform.

Summing up, the main innovations of the 1806 Napoleonic reform consisted of, first, homogenizing and standardizing the administrative system of the Kingdom of Naples; second, establishing a new administrative geography and, in particular, introducing the district as a geographical-administrative unit; and, third, concentrating the supra-municipal administrative functions in the hands of the Intendant at the province level and the Sub-Intendant at the district level. This reform deeply shaped the administrative system of the Kingdom of Naples through the establishment of a new administrative hierarchy at the spatial level. The selection of certain cities as district capitals significantly changed the existing urban hierarchy. Being selected as the district capital represented a great opportunity for a municipality. Thus, in this sense, the 1806 Napoleonic reform affected not only the administrative geography of the Kingdom of Naples but also played a key role in shaping the economic development of the Italian *Mezzogiorno* (Colletta 1848; Spagnoletti 1990; Davis 2006).

2.2. Administrative Reformism in the Kingdom of the Two Sicilies: 1816–1860

On June 9, 1815, the Congress of Vienna sanctioned the return of the Bourbons in the Kingdom of Naples. In December 1816, Ferdinand I became King of the Two Sicilies—that is, a kingdom born from the unification of the continental *Mezzogiorno* and the Kingdom of Sicily.

The French Napoleonic administrative tradition was maintained during the Restoration period of 1816–1860. The only novelty was to increase the number of provinces to 15: Royal Decree No. 360 of May 1, 1816 provided for the division of the province of *Calabria Ulteriore* into the two provinces of *Calabria Ulteriore I* and *Calabria Ulteriore II*.[15] The choice of the Bourbons to maintain the administrative geography and setup inherited by the so-called "Napoleonic decade" (1806–1815) was confirmed by King Ferdinand I with Law No. 570 of December 12, 1816, which organized the Kingdom of the Two Sicilies into 22 provinces, of which the 15 in the continental *Mezzogiorno* were, in turn, divided into 53 districts.[16] The first five columns in the bottom panel of Table A1 (Online Appendix A) summarize the evolution of provinces and provincial capitals in the Bourbonic period (1816–1860), while Table A3 (Online Appendix A) summarizes the evolution of districts and district capitals in the same period. Despite the fact that the number of districts—and, thus, district capitals—remained unchanged during the Bourbonic period after Law No. 570, a few municipalities experienced a change in status within existing districts.

As already established by the Napoleonic reform, each province was governed by an Intendant who was directly appointed by the King. The Intendant was endowed with a broad set of administrative functions—that is, the maintenance of public security using the police, including the Gendarmerie; the publication and execution of laws, decrees, regulations, and ministerial orders; the control and supervision of the activities of the municipalities; and the allocation of tax burden among the municipalities of competence (Spagnoletti 1997).[17]

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15. Indeed, Royal Decree No. 360 of May 1, 1816—which was enforced on January 1, 1817—introduced only a few minor changes to the Napoleonic Decree No. 922 of May 4, 1811.

16. The Napoleonic *governo* was simply renamed *circondario* by the Bourbons in the Kingdom of Two Sicilies and, as earlier, was assigned exclusively judicial functions.

17. Each Intendant was supported by an Intendancy Council appointed directly by the King and whose main task was to manage administrative justice. In contrast, the Provincial Council was a "representative body" of the province comprising a chairman and 15–20 citizens selected by the King on the basis of lists compiled by the municipalities under the supervision of the Intendant.

Furthermore, the role and the administrative functions assigned to the Sub-Intendant were also confirmed by the Bourbons.[18] Each district was under the governance of a Sub-Intendant, who was directly appointed by the King and was dependent on the Intendant ruling the province of reference.[19] Despite the central role of the Intendant, there is no doubt that being the seat of the Sub-Intendency—that is, the district capital—brought certain advantages to a municipality. A few supra-municipal administrative functions continued to be concentrated in these cities, where civil servants, officials, policemen, and soldiers supporting the activities of the Sub-Intendant lived and worked (Spagnoletti 1997).

2.3. Administrative Reformism in the Aftermath of Italian Unification

Italy—similar to other European countries such as Germany—experienced a process of nation-building in the mid-nineteenth century (Pavone 1964; Candeloro 1968; Gunlicks 1984). The unification process was accompanied by administrative reforms that established the skeleton of the public administration system of the new Kingdom of Italy (Pavone 1964).[20]

This process took place in two steps during the period 1859–1865. In the first step, the "Municipal and Provincial Law" No. 3702 of October 23, 1859—the so-called Rattazzi Law—was first approved by and implemented in the Kingdom of Sardinia and then extended to the territories annexed by the Savoy House between 1859 and 1861. This law incorporated the administrative geography of the Napoleonic tradition based on four different sub-national geographical-administrative units: the province, the district, the *mandamento*, and the municipality.[21] Although provinces and provincial capitals already existing in the Kingdom of the Two Sicilies were confirmed after unification, the number of provinces in the

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18. Article 43 of Law No. 570 of December 12, 1816 confirmed Article 2 of Title III of Law No. 132 of August 8, 1806.

19. The District Council, comprising 10 members and a chairman, was maintained, even though its functions were only approximately defined by law.

20. See Online Appendix Figure A1 for a map of the Italian pre-unification states.

21. The *mandamento* established by the Rattazzi Law was rather similar to the *circondario* of the Kingdom of Two Sicilies and, thus, the *governo* of the Napoleonic reform.

Mezzogiorno was increased from 15 to 16 with the establishment of the new province of *Benevento*, which also included those territories that were previously an enclave of the Papal States.[22] The last two columns in the bottom panel of Table A1 (Online Appendix A) list the provinces and provincial capitals in the newborn Kingdom of Italy, while Table A4 (Online Appendix A) lists the districts and district capitals. The number of districts—and, thus, district capitals—increased after unification due to the establishment of the province of *Benevento*, which was divided into the districts of *Benevento*, *Cerreto Sannita*, and *San Bartolomeo in Galdo*, while no municipality experienced a status change within already existing districts.[23]

The Rattazzi Law assigned specific administrative functions to provinces and municipalities, while no administrative functions were assigned to the district and the *mandamento*.[24] In this sense, the Rattazzi Law homogenized the administrative functions attributed to provinces and municipalities throughout the newborn Kingdom of Italy, even if no supra-municipal administrative functions were assigned to the district and the *mandamento*.

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22. The province of *Benevento* was established on October 25, 1860 by the pro-dictator Giorgio Pallavicino, and its establishing decree (*Decreto Istitutivo della provincia di Benevento*) was subsequently confirmed by Prince Eugene of Savoy Carignano, the Lieutenant General of the King, on February 17, 1861. The city of *Benevento* and its surrounding municipalities have been an enclave of the Papal States within the Kingdom of Naples and, then, the Kingdom of the Two Sicilies since Charles I of Anjou granted the territory to Pope Clement IV.

23. Despite the fact Rattazzi Law adopted the administrative geography based on four different geographical levels and did not bring substantial variations in the structure of the existing provinces and districts, it provided for the reallocation of a few municipalities across districts and provinces, particularly due to the creation *ex novo* of the province of *Benevento* and its districts.

24. Title II of the Rattazzi Law defined for each municipality its administrative and governing bodies (the Council and the Mayor), their composition, the rules for their election, and the principles of municipal administration and accounting. It also attributed certain political-administrative functions by assigning compulsory and discretionary expenses to municipalities. Similarly, Title III of the law defined the governing and administrative bodies for each province (the Council, the Provincial Deputation, and the Prefect), their composition, and the rules for their election. It also assigned to provinces a few political-administrative functions, such as the management of properties and assets—particularly, roads and infrastructures (e.g., bridges).

In the period 1859–1865, the enforcement of the Rattazzi Law was highly heterogeneous (Pavone 1964).[25] In continental *Mezzogiorno*, this law had still not been applied in 1861 as it was strongly contested by the local political elites.[26] Moreover, in the early years of the unification process (1861–1871), a civil war occurred in the Italian *Mezzogiorno* between the army of the newborn Kingdom of Italy and groups of Bourbon officers and brigands. This civil war caused not only thousands of deaths but also a significant slowdown in the process of administrative unification in the former territories of the Kingdom of the Two Sicilies (Pinto 2019).

The second step of this process was when the Italian Parliament approved Law No. 2248 of March 20, 1865 on the administrative unification of the Kingdom of Italy—the so-called Lanza Law (Candeloro 1968). The administrative unification of the Kingdom of Italy took place effectively with this reform.[27] In line with the Napoleonic administrative tradition (Peters 2008, 2021), the Lanza Law assigned various supra-municipal administrative functions to district capitals in fields such as the administration of public security, the management of permits, licenses and authorizations, and the administration of public health.[28] The capital city of the district was the seat of the Sub-Prefect—corresponding to the Sub-Intendant of the Napoleonic (and then Bourbonic) period. The Sub-Prefect performed its functions and

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25. Full enforcement—in terms of administrative geography and functions assigned to provinces and municipalities—was possible only in the Kingdom of Sardinia and, after the Peace of Villafranca (July 11, 1859), in the annexed territories of the Kingdom of Lombardy-Venetia. Partial enforcement occurred in the annexed territories of Central Italy, even if with a few changes: after the plebiscites for the annexation to the Kingdom of Italy, the Rattazzi Law was introduced in the Marches and in *Umbria* (both previously ruled by the Papal States), but a few of its articles concerning provinces were suspended; this included Article 241, according to which all provincial expenses had to be financed by the central government. A modified version of the Rattazzi Law was implemented in Sicily in August 1860 and, also in this case, a few articles related to provinces—including Article 241—were excluded. The full non-application of the Rattazzi Law occurred only in the territories of the Grand Duchy of Tuscany, which maintained their administrative autonomy (i.e., the pre-unification administrative setup) until 1865 (Pavone 1964).

26. Cavour, the first Prime Minister of the Kingdom of Italy, advised Luigi Carlo Farini—who was sent to Naples as Lieutenant with dictatorial powers—to "preserve as much as possible of the previous administration" (Pavone 1964, p. 74, our translation).

27. The Lanza Law consisted of a package of six different laws concerning municipal and provincial administration (Appendix A), public and internal security (Appendix B), public health (Appendix C), the Council of State (Appendix D), administrative litigation (Appendix E), and public works (Appendix F).

28. According to Law No. 2626 of December 6, 1865 on the regulation of the judicial system in the Kingdom of Italy, the capital city of a district could also be the seat of a court.

tasks, supported by a staff of bureaucrats, doctors, officials and policemen, under the direction of the Prefect of the reference province.

The presence of the Sub-Prefecture in the district capital city had two fundamental roles. First, it operated as a "center of powers" within the province with specific functions, such as public security and justice, public health, and authorizations and licenses. Second, it functioned as a "node" at the local level for the reception and transfer of information, administrative procedures, political acts, regulations, and laws coming from the Prefect—ruling the reference province—and the central government. In addition, district capitals played a central role in coordinating several administrative activities at the local level and in connecting the peripheral municipalities located within the boundary of the district with the authorities at the provincial and central government levels.[29]

To summarize, the district capitals of the Italian *Mezzogiorno* evolved since their identification by the Napoleonic authorities in 1806 and until the administrative reform implemented by the newborn Kingdom of Italy in 1865. This evolution concerned the number of supra-municipal administrative functions assigned, first, to the Sub-Intendant—in the Napoleonic and Bourbonic periods—and, then, to the Sub-Prefect—in the Kingdom of Italy. An in-depth analysis of the administrative laws and of the related-documentation reveals how the number of assigned functions increased, particularly with the approval of the Lanza Law in 1865. Our expectation is that this concentration of functions in district capitals positively affected their development, thereby shaping the economic geography of the Italian *Mezzogiorno*.

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29. It is worth noting that the district was not only an administrative unit but also a "space of sociality" characterized by a strong social, cultural, and political identity. Indeed, numerous districts had their own daily and weekly newspapers, thereby contributing to the development of a sense of belonging to the district (Mori 2019).

3. Empirical Framework

3.1. Study Region, Population Data, and Estimation Sample

Our study region includes the territories in continental Southern Italy that were part of the Kingdom of Naples (see Figure 1).[30] According to Giustiniani (1797–1805, Volumes I–X), there were 4,265 populated settlements in 1797, 46%–47% of which were identified as *universitates* (Piccioni 2003; Salvemini 2014).

We empirically assess whether the municipalities selected as district capitals in 1806 by the Napoleonic authorities gained an urban development premium—due to the acquisition of supra-municipal administrative functions by law and, therefore, to becoming "centers of power" at the local level—by relying primarily on population data. We have collected municipality-level population data from a variety of sources, and considered municipalities at their 1911 configuration as a reference for reconstructing data referring to the pre-Italian unification period starting from the year 1648.[31] First, we have digitalized population data for the pre-Napoleonic period drawing from Giustiniani (1797–1805, Volumes I–X), who provides information on the number of households (the so-called *fuochi*) for the years 1648 and 1669 and on the number of inhabitants for the year 1797.[32] Following Beloch (1959) and Fusco (2009), we have obtained population figures for the years 1648 and 1669 by multiplying the number of households by the factor five. Second, we have digitalized population figures provided by Marzolla (1832) for the year 1828, and drawn from the *Censimento degli Antichi Stati Sardi* (published

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30. The Kingdom of Naples was established in 1282 by Charles I of Anjou following the War of the Sicilian Vespers (1282–1302), which led to the division of the continental territories of the "old" Kingdom of Sicily and the island of Sicily—henceforth known as the Kingdom of Sicily.

31. The 1911 Italian population census provides information at the hamlet level, such that we have been able to assign pre-Italian unification population figures for towns, villages, and small populated settlements to the reference municipalities. Moreover, some small human settlements were integrated by municipalities and became neighborhoods.

32. Lorenzo Giustiniani's *Dizionario Geografico-Ragionato del Regno di Napoli* was published in 13 volumes between 1797 and 1816. The first 10 volumes provide information on individual populated settlements in alphabetical order, while the last 3 volumes provide information on natural features (e.g., rivers, mountains, volcanos) of the Kingdom of Naples.

by the Italian Ministry of Agriculture, Industry and Trade in 1864) for the year 1859.[33] Finally, we have collected population figures for the period 1861–1911 from the population censuses—carried out every 10 years starting in 1861—provided by the Italian National Institute of Statistics (ISTAT). Overall, we have been able to collect population data covering the pre-Napoleonic years 1648, 1669, and 1797; the Bourbonic years 1828 and 1859; and the post-Italian unification years 1861, 1871, 1881, 1901, and 1911.[34]

We have identified the estimation sample in order to compare municipalities selected as district capitals in 1806 by the Napoleonic authorities (constituting our treatment group) with municipalities without supra-municipal administrative functions (constituting our control group). To this aim, we have considered the following criteria: first, we have excluded all municipalities that have been provincial capitals from the sixteenth century until 1911 even for a short period of time; second, we have excluded all municipalities that have been the seat of *governo* during the Napoleonic period, and/or *circondario* under the Bourbons, and/or *mandamento* in the Kingdom of Italy even for a short period of time; third, we have excluded all municipalities that have been district capitals only for a period of time between 1806 and 1911.[35] Therefore, we have identified as treated units only those municipalities that were selected as district capitals by Law No. 132 of August 8, 1806 and maintained their status uninterruptedly until 1911; by contrast, we have identified as control units those municipalities that have never been selected as capital cities at any geographical-administrative level and, thus, have never been endowed with supra-municipal administrative functions by law, over the entire period considered. Finally, we have

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33. The *Censimento degli Antichi Stati Sardi* was published by the Italian Ministry of Agriculture, Industry and Trade between 1862 and 1864, and provides municipality-level data for each pre-unification state.

34. We do not have data available for the year 1891 because no census was carried out due to financial difficulties of the Kingdom of Italy (Ciccarelli and Fenoaltea 2013).

35. We have identified the municipalities to be included in the estimation sample based on laws, decrees, and atlases (e.g., Giustiniani 1797; Marzolla 1832; De Sanctis 1840) of the Napoleonic, Bourbonic, and Kingdom of Italy periods. We have also excluded from the estimation sample the municipalities that belonged to the Principality of *Pontecorvo* and the Principality of *Benevento*, two satellite states of the French Empire established in 1806 and located within the Kingdom of Naples, as they were enclaves of the Papal States before the Napoleonic occupation.

excluded all municipalities for which we have not been able to reconstruct population figures over the entire period 1648–1911.

Considering the abovementioned selection criteria and population data availability, our estimation sample includes 15 treated and 959 control municipalities, which are mapped in Figure 2. Table A5 (Online Appendix A) lists the 15 treated municipalities that were selected as district capitals in 1806 by the Napoleonic authorities, maintained their status unchanged until 1911, and for which population figures are available for the entire period 1648–1911.[36]

3.2. Empirical Modeling

We evaluate empirically whether district capitals gained an urban development premium compared with non-capital municipalities through the following DID specification:

$$Population_{mdpt} = \alpha + \beta District\ Capital_{mdpt} + \gamma X_{mdpt} + \delta X_{pt} + \zeta_m + \theta_t + \mu_d + \nu_d + \varepsilon_{mdpt} \quad (1)$$

where $Population_{mdpt}$ denotes the population (in thousand inhabitants) of municipality m located in district d within province p in year t; $District\ Capital_{mdpt}$ denotes the treatment dummy variable which takes a value of zero for the control municipalities over the entire observation period 1648–1911 and for the treated municipalities in the pre-Napoleonic observation years 1648, 1669, and 1797, while a value of one for the treated municipalities over the observation period 1828–1911; X_{mdpt} is a vector of municipality-level controls; X_{pt} is a vector of province-level controls; ζ_m and θ_t capture municipality and year fixed effects (FE), respectively; μ_d denotes a time trend at the Bourbonic district level (defined

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36. Table A5 (Online Appendix A) lists also two municipalities—that is, *Sala* (corresponding to the modern *Sala Consilina*) and *Castellammare* (corresponding to the modern *Castellammare di Stabia*)—for which we have not been able to reconstruct pre-1806 population figures due to data unavailability. However, these two municipalities were eligible for inclusion in the estimation sample as they were selected as district capitals in 1806 and maintained their status unchanged until 1911.

as for districts in 1828); v_d denotes a time trend at the Kingdom of Italy district level; and ε_{mdpt} is the error term.

The vector $\boldsymbol{X}_{mdpt}$ of municipality-level controls includes both geographical and historical (pre-1806) variables. The set of geographical controls includes the yearly-specific distance between a municipality and the own provincial capital to control for proximity to the seat of the reference Intendency/Prefecture, and a series of time-invariant variables that enter Equation (1) interacted with year dummies, namely: a within-district centrality measure defined as the average pairwise distance among the municipalities belonging to a district in the year 1806, being "spatial centrality" the criterion adopted by the Napoleonic authorities to select district capitals; a dummy variable for coastal municipalities; land surface; altitude; latitude; and an index of terrain ruggedness.[37] The set of historical controls includes time-invariant variables that enter Equation (1) interacted with year dummies, namely: a dummy variable for state-owned (i.e., non-feudal) municipalities in 1797 to control for heterogeneity related to fiscal, commercial, and administrative prerogatives granted to such cities by the King (Borghi and Masciandaro 2023); two dummy variables for municipalities that were the seat of a bishop or an archbishop in 1797, respectively, to control for the presence of first forms of political and institutional organization and coordination (Guiso, Sapienza, and Zingales 2016); a dummy variable for princedom municipalities in 1797 to control for the strength of the aristocracy (Guiso, Sapienza, and Zingales 2016); a dummy variable for municipalities hit by the plague in 1658 to control for heterogeneity related to an exogenous shock that could have affected city size (Fusco 2007); a dummy variable capturing whether a municipality recorded a population of at least 5,000 inhabitants in the period 1300–1500 to control for the early presence of a large city (Bosker, Buringh, and van Zanden 2013); a variable capturing the distance between a municipality and the closest ancient Roman road to control for proximity to ancient commercial routes that could have favored the growth of a city as a main trading, political, and

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37. We have calculated the within-district centrality measure by considering all the municipalities belonging to a district even if excluded from the estimation sample. In other words, we have calculated this variable considering also those municipalities that have been provincial capitals, district capitals for a short period of time, seat of *governo*, and/or *circondario*, and/or *mandamento*, and with unavailable population data.

administrative center (Oto-Peralías and Romero-Ávila 2017); and a variable capturing municipalities'

exposure to earthquakes in the period 1005–1805 to control for systematic environmental risks that could

not only have caused exogenous variations in city size but also increased the power and political strength

of religious orders (Belloc, Drago, and Galbiati 2016).[38] The vector X_{pt} of province-level controls

includes two time-varying variables: the share of a province's population to the total population of the

Kingdom of Naples to control for the relative size of provinces; and the density of the provincial railway

network to control for the development of transport and communication infrastructures. Table B1 (Online

Appendix B) provides a summary of these variables and reports their definition and data source, while

Tables B2 to B5 (Online Appendix B) report some descriptive statistics and the correlation matrices of

the variables included in Equation (1).

Although the inclusion of municipality fixed effects captures any time-invariant characteristic of

municipalities such as geographical and pre-treatment (historical) features, controlling for their potential

time-varying effects helps us addressing issues related to the potential non-random selection of a

municipality as district capital in 1806 (Li, Lu, and Wang 2016; Bo 2020). This is particularly the case

for the 1806 within-district centrality measure, as "spatial centrality" represented the selection criterion

adopted by the Napoleonic authorities to choose district capitals. Finally, the inclusion of Bourbonic and

Kingdom of Italy district-specific time trends allows us controlling for development paths that were

specific to the district to which the municipalities belong and that could have influenced their population

dynamics.[39]

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38. The variable capturing exposure to earthquakes is computed as the number of earthquakes weighted by their intensity—normalized in the interval [0, 1]—and scaled by the distance to the epicenter. As suggested by Belloc, Drago, and Galbiati (2016, p. 1875), "earthquakes … represented a shock to people's religious beliefs and … enhanced the ability of political-religious leaders to restore social order after a crisis."

39. The inclusion of both a Bourbonic and a Kingdom of Italy district-specific time trend also helps us controlling for the marginal changes in district boundaries occurred over the observation period.

3.3. Identification Strategy

Despite Equation (1) includes a large number of fixed effects and controls, our estimates could still be biased by unobservable factors that are not accounted for and that can be correlated simultaneously with the timing and the outcome of the 1806 Napoleonic reform—for example, a higher population growth potential characterizing district capitals compared with non-capital cities before 1806 (Bo 2020; Bai and Jia 2023). Indeed, the reliability of our estimates relies on a standard parallel trend assumption, which requires the treated and control units experiencing the same pattern in the outcome variable, conditional on observables, in the absence of the shocking event. In our case, the identification assumption requires that municipalities in the treatment and control groups would have experienced the same population dynamics if the Napoleonic authorities had not instituted the geographical-administrative unit of the district and selected—and, thus, attributed supra-municipal functions to—district capitals in 1806.

We test whether differential trends existed before the implementation of the 1806 reform by relying on a more flexible specification of Equation (1) that accounts for a set of yearly treatment effects (Autor 2003). This allows us to test for the direction of causality by checking for anticipatory effects in the period before the implementation of the Napoleonic reform. Moreover, such a flexible specification allows us to assess the time-varying effect of the Napoleonic reform on urban development over the entire post-reform period. We modify Equation (1) according to an event study approach as follows:

$$Population_{mdpt} = \alpha + \sum_{h=1}^{H} \pi_{\omega-h} District\ Capital_{mdpt}^{\omega-h} + \sum_{l=1}^{L} \pi_{\omega+l} District\ Capital_{mdpt}^{\omega+l}$$

$$+\gamma \boldsymbol{X}_{mdpt} + \delta \boldsymbol{X}_{pt} + \zeta_m + \theta_t + \mu_d + \nu_d + \varepsilon_{mdpt} \tag{2}$$

such that the variable $District\ Capital_{mdpt}$ is replaced by a set of lead dummy variables ($District\ Capital_{mdpt}^{\omega-h}$) referring to the available pre-1806 observation years $h = 1648, 1669, 1797$, with ω denoting the implementation year of the Napoleonic reform, and a set of lag dummy variables

($District\ Capital^{\omega+l}_{mdpt}$) referring to each post-1806 available observation year l starting from 1828. Therefore, we expect $\pi_{\omega-h} = 0$ for all h if the parallel trend assumption holds prior to the implementation of the Napoleonic reform in 1806. We estimate Equation (2) by specifying the lead dummy variable referring to the year 1797 as the reference category.

A second requirement of our identification strategy concerns the absence of spillover effects between the treated and control municipalities. Indeed, Equation (1) allows us to assess whether the Napoleonic reform has induced an urban development premium for district capitals compared with non-capital municipalities under the assumption that the 1806 reform had neutral effects on the latter type of municipality. However, such an urban development premium could be the result of a mere reallocation effect if the 1806 reform simply acted as a "pushing force" inducing a migration of people and economic activities from non-capital cities towards district capitals. In other words, evidence of spatial spillovers between a treated municipality and the neighboring control municipalities would imply a reallocation effect rather than an urban development effect of the Napoleonic administrative reform (Miguel and Kremer 2004; Bo 2020). We test whether spatial spillovers are in place by modifying Equation (1) as follows:

$$Population_{mdpt} = \alpha + \beta District\ Capital_{mdpt} + \rho Neighbors_{mdpt} + \gamma \boldsymbol{X}_{mdpt} + \delta \boldsymbol{X}_{pt}$$
$$+\zeta_m + \theta_t + \mu_d + \nu_d + \varepsilon_{mdpt} \tag{3}$$

where $Neighbors_{mdpt}$ denotes a binary variable referring to neighboring control municipalities located within distance ϕ from a district capital, with $\phi = 15, 25, 50, 75, 100$ km. The parameter ρ captures the spillover effect, such that we expect no spatial spillovers to be in place if $\rho = 0$.

4. Empirical Results on Urban Development

4.1. Baseline Results and Identification

In this sub-Section, we first present the baseline results on urban development and, second, test for the identifying assumptions.

Table 1 reports the results of the estimation of Equation (1) with fixed effects, district time trends, and control variables included in the empirical specification according to a stepwise procedure. Looking at column (6), we estimate an average urban development premium of approximately 2,000 inhabitants for district capitals compared with non-capital cities: this premium corresponds to a 92.43% population increase, given a sample average population of approximately 2,128 inhabitants. However, as previously discussed, this result can be interpreted as a causal effect provided that the parallel trend assumption is satisfied and spillover effects between the treated and control municipalities are not in place.

Figure 3 reports the results of the estimation of Equation (2), which is used both to test whether the parallel trend assumption holds and to evaluate time persistence of the urban development effects of the Napoleonic administrative reform. On the one hand, the coefficients referring to the pre-Napoleonic reform period are not statistically significant, and the 1669 coefficient is virtually equal to zero.[40] This result suggests that the parallel trend assumption holds, such that we can provide a causal interpretation to the results reported in Table 1. On the other hand, we find evidence of a post-Napoleonic reform population dynamics that is coherent with the historical narrative presented in Section 2. First, Figure 3 highlights a higher urban development premium for district capitals compared with non-capital cities after the approval of the Lanza Law by the Italian Parliament in 1865 with respect to the Bourbonic period. Indeed, while the Bourbonic ruler did not make any substantial change to the functions and powers assigned to the Sub-Intendant from the Napoleonic regulations, the Lanza Law assigned more functions and powers to the Sub-Prefect, thus increasing the relative importance of district capitals in the territorial administrative hierarchy of the Kingdom of Italy. Second, it is worth noting how the annexation

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40. Table C1 (Online Appendix C) reports the year-specific coefficients presented graphically in Figure 3.

of the Kingdom of the Two Sicilies to the Kingdom of Italy occurred in 1861 caused a slowdown in district capitals' urban development dynamics. This is possibly due to a climate of institutional uncertainty emerged during the unification process as well as the increased phenomenon of brigandage and armed opposition from Bourbon officials that occurred in the first decade after unification (Pinto 2019).

The dynamics highlighted in Figure 3 is worthy of further investigation by assessing the urban development premium of district capitals during the Bourbonic and the Kingdom of Italy periods separately. To this aim, we modify Equation (1) and consider two period-specific treatment dummy variables: the first one refers to the Bourbonic period (i.e., observation years 1828 and 1859) and the pre-Lanza Law Kingdom of Italy period (i.e., observation year 1861); the second one refers to the post-Lanza Law Kingdom of Italy period (i.e., observation years 1871–1911). The results of this exercise are reported in Table 2. As expected, we find a relatively higher urban development premium for district capitals compared with non-capital cities during the post-Lanza Law period with respect to the Bourbonic and pre-Lanza Law treatment period. In other words, the 1865 law that defined the administrative skeleton of the Kingdom of Italy, by attributing more functions and powers to the Sub-Prefects, further accentuated an already existing duality between district capitals and non-capital cities in the Italian *Mezzogiorno* that originated from the 1806 Napoleonic administrative reform.

We now present the results concerning our second identifying assumption—that is, the existence of spillover effects between the treated and control municipalities. As shown in Table 3, we do not find evidence of spatial spillover effects as the variables for neighboring control municipalities show negligible estimated coefficients. Moreover, the results confirm our main evidence of an average urban development premium of approximately 2,000 inhabitants for district capitals compared with non-capital cities. In other words, we find evidence that the 1806 Napoleonic reform had a growth effect for district capitals, rather than a mere reallocation effect between the treated and control municipalities.

4.2. Robustness and Placebo Analysis

We now present the results of a series of robustness and placebo exercises aimed at testing our main findings. The results are reported in Online Appendix C.

4.2.1. Robustness Analysis. As a first exercise, we rely on alternative approaches to inference. First, we cluster standard errors at various district and province levels: we consider the districts defined as for the 1806 Napoleonic reform, the Bourbonic period (year 1828), and the Kingdom of Italy period 1861–1911; we consider the provinces defined as for the pre-Napoleonic period, the 1806 Napoleonic reform, the Napoleonic period 1807–1815 and Bourbonic year 1816 (during which provinces had the same structure), the Bourbonic period 1817–1860, and the Kingdom of Italy period 1861–1911.[41] Second, we correct standard errors for spatial dependence of unknown form a la Conley (1999): we consider distance cut-off values of 50, 100, 150, and 200 km beyond which we assume spatial correlation to be zero, and allow a Bartlett distance linear decay in the correlation structure. The results of these exercises are reported in Tables C4 and C5 (Online Appendix C), respectively, and fully corroborate those reported in column (6) in Table 1.

Second, we deal with the potential non-random selection of district capitals in 1806 by relying on a kernel matching approach.[42] Despite the selection criterion adopted by the Napoleonic authorities concerned the "spatial centrality" of a municipality within a district, it could be that "historical factors"—such as being a center of religious power—influenced the selection process. We thus match district capitals with non-capital cities in a cross-sectional setting with respect to the 1806 within-district centrality measure and the pre-1806 historical variables entering Equation (1) and consider optimal, half-

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41. Tables C2 and C3 (Online Appendix C) report the distribution of municipalities with respect to the various district and province levels considered in this exercise. Clustering the standard errors at the various district levels allows us to further control for the marginal changes in district boundaries occurred over the observation period.

42. Given the relatively small size of the treatment group (15 municipalities), we expect kernel matching to exploit our data best as it uses all units in the control group to construct a match for each treated unit conditional on the treated and control units lying on the common support.

optimal, and double-optimal bandwidths.[43] Table C6 (Online Appendix C) reports the balance test on the matching procedures, while Table C7 (Online Appendix C) reports the results of the estimation of Equation (1) on the matched samples: overall, the results fully corroborate those presented in column (6) in Table 1.

Third, we restrict the control group to only those municipalities with a 1797 population level equal to or greater than the minimum 1797 population level in the treatment group in order to compare district capitals and non-capital cities that, at the time of the Napoleonic reform, were of similar size. The result of this exercise is reported in column (1) in Table C8 (Online Appendix C), and corroborates our main findings.

Fourth, we exclude the district capitals of *Barletta* and *Pozzuoli* from the treatment group as no control municipality belonging to these two districts is included in our estimation sample. As shown in column (2) in Table C8 (Online Appendix C), our main results are confirmed.

Fifth, we enlarge the treatment group and consider also those municipalities that have been district capitals only for a period of time between August 1806 and 1911—provided that they have never been provincial capitals—and which, therefore, we excluded from the estimation sample (see Online Appendix Table C9). Table C10 (Online Appendix C) reports the results of a series of robustness tests performed on the enlarged estimation sample that includes also 23 (out of the 26) additional district capitals for which we have been able to collect population figures over the entire observation period. Column (1) reports the results obtained by estimating Equation (1) on the enlarged estimation sample, and suggests an urban development premium of approximately 2,300 inhabitants for district capital compared with non-capital cities. In column (2), we disentangle the district capital status' population effects between the municipalities that have been capital cities over the entire period August 1806–1911 and those that have been capital cities only for a period of time between August 1806 and 1911, while

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43. The historical (pre-1806) variables included in the matching procedures are: state-owned municipality in 1797; bishop seat in 1797; archbishop seat in 1797; princedom in 1797; spread of the plague in 1658; "large city" in the period 1300–1500; distance to the closest ancient Roman road; and exposure to earthquakes in the period 1005–1805.

column (3) reports the results obtained by estimating a modified version of Equation (1) where the district capital dummy variable is replaced by a continuous variable capturing the (cumulated) number of years a municipality has been a district capital: the results of these exercises suggest a relatively higher premium for municipalities that have been district capitals for a longer period of time—that is, that a longer exposure to the district capital city status has led to a higher urban development premium.

As a final robustness exercise, we rely on the bias-corrected Synthetic Control Method proposed by Abadie and L'Hour (2021) and Wiltshire (2022). We allow for the selection of synthetic control municipalities among all the non-capital cities based on the following municipality-level predictors: population in 1648, 1669, and 1797; baseline geographical controls (distance to the own provincial capital, within-district centrality in 1806, coastal dummy, land surface, altitude, latitude, and terrain ruggedness); and baseline historical (pre-1806) controls (1797 state-owned municipality dummy, 1797 bishop seat dummy, 1797 archbishop seat dummy, 1797 princedom municipality dummy, 1658 plague dummy, "large cities" dummy in the period 1300–1500, distance to the closest ancient Roman road, and exposure to earthquakes in the period 1005–1805). Figure C1 (Online Appendix C) plots the estimated bias-corrected gap in population (defined in thousand inhabitants) between district capitals and synthetic control municipalities: the graphical evidence fully corroborates our DID analysis.

4.2.2. Placebo Analysis. We also conduct a placebo exercise to assess the magnitude of the district capital treatment effect by estimating Equation (1) on 1,000 randomly drawn placebo treated units. Figure C2 (Online Appendix C) plots the cumulative distribution of the 1,000 estimated placebo treatment coefficients: we find that the "true" estimated effect associated with the district capital status is larger than the 100% of the placebo effects. Moreover, as shown in Table C11 (Online Appendix C), among all the 1,000 estimated placebo regressions, we find 0% results to be statistically significant at 0.1% level, 1% results at 1%, 4.7% results at 5% level, and 5.3% results at 10% level. Overall, only 11% of the placebo treatment effects show some level of statistical significance. This exercise further corroborates

our previous evidence: municipalities selected as district capitals in 1806 gained a time-persistent urban development premium compared with non-capital municipalities.

4.2.3. Institutions vs. Geography.   We now provide more suggestive evidence to disentangle the population effects of being a district capital city from those (potentially) related to the within-district geographical centrality of district capitals—that is, the selection criterion adopted by the Napoleonic authorities to identify district capitals in 1806. Indeed, it could be that higher geographical centrality has induced an urban development premium per se because of ease of movement and, thus, higher attractiveness, for the surrounding population. To this aim, we estimate a series of cross-sectional population level equations via Ordinary Least Squares (OLS) for the years 1828 to 1911, with standard errors clustered at the municipality and district levels, alternatively. As shown in Table C12 (Online Appendix C), our results suggest a positive and statistically significant association between city size and the district capital city dummy variable; by contrast, we find city size to be in a negligible association with the 1806 within-district geographical centrality measure.[44] This evidence further corroborates our results: district capitals gained an urban development premium by becoming "center of powers" and the seat of supra-municipal administrative functions.

5. Evidence on Industrial Development

We now move from the analysis of urban development captured by population dynamics over the period 1648–1911 to the analysis of industrial development in the late Bourbonic period and in the Kingdom of Italy period.

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44. The estimated coefficients of the within-district centrality measure are negative, as expected: indeed, this variable is defined as the average pairwise distance between a municipality and the other municipalities within the same district, such that higher values denote lower geographical centrality.

5.1. Empirical Setting

We provide evidence on industrial development in the Bourbonic period by looking at "industrial cities" in the 1850s. We use digitalized information drawn from Petrocchi (1955) and Mangone (1976) and consider as "industrialized" those municipalities identified by both authors as centers of production and manufacturing activity in the period 1850–1860.[45] We proxy for industrial development in the Kingdom of Italy period through employment in 1911 (relative to municipal population in 1911), with data on total, industrial, and services employment digitalized from the *Censimento degli opifici e delle imprese industriali al 10 giugno 1911* published by the Italian Ministry of Agriculture, Industry and Trade in 1913.[46] We thus rely on a cross-sectional regression framework, and estimate the following general-form equation:

$$Y_{mdpc} = \alpha + \beta District\ Capital_{mdpc} + \gamma \boldsymbol{X}_{mdpc} + \delta \boldsymbol{X}_{pc} + \zeta_c + \varepsilon_{mdpc} \tag{4}$$

where Y_{mdpc} denotes the dependent variable for industrial development in municipality *m* located in district *d* within province *p* and *compartimento c*—that is, a geographical macro-region instituted in 1861 for statistical purposes; thus, the dependent variable can be either the dummy for "industrial city" in the period 1850–1860 or the number of (total, industrial, services) employees per inhabitant in 1911. The dummy variable $District\ Capital_{mdpc}$ denotes the treatment assignment, as before. The vector $\boldsymbol{X}_{mdpc}$ consists of municipality-level control variables and—depending on the output variable and, thus, period-specific data availability—includes: population density and population growth with respect to the pre-Napoleonic reform year 1797 to control for city size and growth dynamics; coastal feature; land surface; altitude; terrain ruggedness; latitude; and distance to the own provincial capital city to control for

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45. Petrocchi's (1955) and Mangone's (1976) books describe the main production centers and industrial activities of the Kingdom of Naples in the period 1850–1860.

46. The *Censimento degli opifici e delle imprese industriali al 10 giugno 1911* was the first industrial census carried out by the Kingdom of Italy.

proximity to the seat of the Intendancy/Prefecture of reference. The vector $\boldsymbol{X}_{pc}$ consists of province-level control variables and—depending on the output variable and, thus, period-specific data availability—includes: the share of a province's population to the total population in the Kingdom of Naples' territory to control for the relative size of a province; the density of the railway network to control for the development of transportation and communication infrastructures; and the rate of literate adult population to control for human capital development. The term ζ_c denotes a set of *compartimento* dummies defined for the year 1871 and included only in the regression models for industrial development in 1911.[47] Finally, ε_{mdpc} is the error term.

We estimate Equation (4) via Probit and OLS as well as via an instrumental variable (IV) approach to deal with the potential endogeneity of the district capital city variable. The set of excluded instruments includes the variable for within-district centrality in 1806, being "spatial centrality" the criterion adopted by the Napoleonic authorities to select district capitals, plus a series of historical (pre-1806) variables capturing factors that could have affected the selection of a city as district capital, namely: the dummy variable for state-owned municipalities in 1797, under the rationale that such cities experienced fiscal, commercial, and administrative privileges that could have led to higher relative growth (Borghi and Masciandaro 2023); the dummy variables for bishop and archbishop seat in 1797, under the rationale that such cities experienced the presence of first forms of political and institutional organization and coordination and were centers of religious power (Guiso, Sapienza, and Zingales 2016); the dummy variable for princedom municipalities in 1797, under the rationale that such cities could have benefitted from "aristocracy advantages" (Guiso, Sapienza, and Zingales 2016) in the selection process; a dummy variable capturing whether a municipality recorded a population of at least 5,000 inhabitants in 1797, under the rationale that city size could have affected the selection process; and the variable capturing

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47. Despite the *compartimento* was instituted in 1861, the original configuration had only one macro-region—called *Provincie Napoletane*—for the territories of the former Kingdom of Naples. This unique *compartimento* was divided into five smaller macro-regions—that is, *Abruzzi e Molise*, *Campania*, *Puglie*, *Basilicata*, and *Calabrie*—only in 1871 (ISTAT 2018).

municipalities' exposure to earthquakes in the period 1005–1805 as a proxy for the political strength of religious orders that could have affected the selection process (Belloc, Drago, and Galbiati 2016).

Table D1 (Online Appendix D) provides a summary of the variables entering Equation (4) and reports their definition and data source, while descriptive statistics and correlation matrices are reported in Tables D2 to D4 (Online Appendix D).

5.2. Empirical Results

Table 4 reports the results of the estimation of Equation (4)—via Probit, linear probability model (LPM) and IV-LPM—for industrial development in the Bourbonic period 1850–1860. The first-stage F statistic on the excluded IVs is higher than the conservative cut-off value of 10 and the p-value of the Hansen J statistic testing the over-identifying restrictions is negligible. We find a positive a statistically significant effect of being a district capital on industrial development: looking at the IV-LPM results, we estimate that district capitals were approximately 31% more likely to be industrial cities than non-capital cities. This suggests that the 1806 Napoleonic reform induced a (long-term, time-persistent process) of economic divergence between district capitals and non-capital cities, thus facilitating heterogeneity in the development path of the Italian *Mezzogiorno*.

We confirm this evidence when looking at the post-1865 Lanza Law period and proxying industrial development with total, industrial, and services employment in 1911. The results are reported in Table 5: looking at the IV results, we find that district capitals had approximately 0.06 employees per inhabitant more than non-capital cities, and that this result is driven by industrial rather than services employment.[48]

Overall, this analysis confirms the previous results on urban development: district capitals, by becoming "centers of power" and seats of administrative functions at the local level, experienced a higher

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48 . The sample mean values for total, industrial, and services employment per inhabitant are equal to 0.0198, 0.0196, and 0.0002, respectively.

development path—still observable about a century after the 1806 Napoleonic reform—relative to non-capital municipalities.[49]

6. Underlying Mechanisms

We exploit the 1806 Napoleonic reform as a historical experiment to study how the administrative reform process implemented by the Napoleonic authorities—and maintained by the Bourbons, first, and even reinforced under the Kingdom of Italy subsequently—shaped urban and industrial development in the long run by redesigning the Italian *Mezzogiorno*'s territorial administrative hierarchy. Our empirical results suggest that municipalities selected as district capitals in 1806 gained an urban and industrial development premium compared with non-capital cities, and that this premium persisted over time. We now discuss, and then test empirically, two potential mechanisms that may help explaining the relationship between administrative hierarchy and development, namely public goods provision and transport network accessibility.

The first potential mechanism explaining the development premium enjoyed by district capitals compared with non-capital cities concerns the provision of public goods (Campante and Do 2014; Becker, Heblich, and Sturm 2021; Guillouzouic, Henry, and Monras 2021; Chambru, Henry, and Marx 2022; Faggio, Schuler, and vom Berge 2022). District capitals experienced the arrival of officials, policemen, soldiers, and civil servants and this may have reasonably induced an increase in the demand for local public goods (e.g., schools, infrastructures) with positive externalities benefitting the local population and translating into greater industrial development.

The second potential mechanism concerns transport network accessibility. As highlighted in Section 2, the geographical-administrative structure envisaged by the Napoleonic reform—and then evolved under the Bourbon and the Savoy House rulers—was based on a multi-level transmission system

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49. The evidence presented in Tables 4 and 5 is confirmed when clustering standard errors at the district level. The results are reported in Online Appendix E.

of legal information, administrative procedures, political acts, regulations, and laws in which district capitals acted as key "nodes" of connection between the provincial capital of reference and the peripheral municipalities. Therefore, it was essential for district capitals to be connected to the transport network. We can reasonably hypothesize that greater accessibility has contributed to urban development in general, and to the development of the production sector in particular, thus facilitating the industrialization process in district capitals.

6.1. Empirical Setting

We capture public goods provision through two main sets of variables concerning kindergartens in 1869 and municipal expenses in 1884. The rationale for this relies on the distinction between compulsory and discretionary expenses provided by Title II of the 1859 Rattazzi Law that was later implemented in the annexed territories of the Italian *Mezzogiorno* with the approval of the 1865 Lanza Law.[50] We consider discretionary expenses as a proxy for a municipality's attention to local community needs and, thus, for public goods provision.

Interestingly, while primary education was made compulsory in the Kingdom of Italy with Royal Decree No. 347 of November 28, 1861—that extended the Casati Law of November 13, 1859 to the annexed territories—and, therefore, was listed among municipalities' compulsory expenses, public education at lower (e.g., kindergartens) and higher (e.g., industry schools, commercial schools, classical and technical secondary education) levels was not mandatory and, therefore, was listed among

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50. Compulsory expenses assigned to municipalities by law included the payment of salaries to municipal employees; primary education; the maintenance of municipal roads and public squares; the collection of municipal taxes; the preservation of municipal properties; and the management of cemeteries. Discretionary expenses were grouped into a series of expenditure categories, namely: public administration (the payment of an allowance to the mayor, the payment of subsidies to civil servants, their widows and their orphans); local police and hygiene (public healthcare, public lighting, expenses for the slaughterhouse and dog catching); public security and justice (payment and accommodation for firefighters); public infrastructures (beautification of streets and squares, maintenance of gardens, construction of canals and aqueducts, construction of harbors on lakes and rivers, construction of slaughterhouses, construction and maintenance of markets); public education (kindergartens, evening and festive schools for adults, schools for blind and deaf-mute people, industrial schools, commercial schools, vocational schools, elementary schools beyond the number prescribed by law, expenditure on museums and libraries, expenditure on classical and technical secondary education); worship; charity (orphanages, nursing homes, funeral transport and coffins for the poor); and other miscellaneous expenses (the purchase of instruments for the town band, theatre endowments).

municipalities' discretionary expenses. We thus capture public goods provision by, first, relying on information on the presence of a kindergarten in 1869 and the number of pupils enrolled (relative to municipal population in 1861), with data drawn from the *Statistica del Regno d'Italia: Gli Asili Infantili nel 1869* published by the Italian Directorate General of Statistics in 1870.

Second, we test for public goods provision by relying on municipality-level balance sheet data drawn from the *Bilanci comunali per l'anno 1884* published by the Italian Ministry for Agriculture, Industry and Trade in 1887. This source provides information on total revenues, while more disaggregated information on the expenditure side, namely compulsory and discretionary expenses aggregated with respect to three main categories: public education; public infrastructures; and other expenses. We construct different dependent variables based on balance sheet data: total (compulsory plus discretionary) expenses per inhabitant; discretionary expenses per inhabitant; share of discretionary expenses to total expenses; share of discretionary expenses to total expenses in education; and share of discretionary expenses to total expenses in infrastructures.[51]

Concerning the second mechanism, we proxy for transport network accessibility through train station endowment in 1873. We have digitalized information on active train stations existing in 1873 drawn from the third edition of the *Dizionario dei Comuni del Regno d'Italia* published by the Italian Ministry of the Interior in 1874. We thus consider a binary dependent variable taking a value of one whether a municipality was endowed with a train station in 1873, and a value of zero otherwise.[52]

We test for public goods provision and transport network accessibility in a cross-sectional regression framework similar to that of Equation (4) and rely on Probit, OLS, and IV estimation approaches—we consider the same set of excluded instruments as before in the IV estimates. Table F1

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51. Per capita variables are based on 1881 population census figures.

52. In the second half of the nineteenth century, the railway network was the most important and efficient transport infrastructure. In 1873, the construction of the national railway network was still in progress and started to become widespread in the Italian *Mezzogiorno* only from the 1880s also as a result of the approval of the Baccarini Law in 1879 (Bonfatti et al. 2022), which established the opening of dozens of minor internal lines gradually filling the gaps in the national network. Indeed, the Italian railway network increased from about 2,500 km in 1861 to about 18,000 km in 1911. Figure F1 (Online Appendix F) maps the evolution of the railway network in Italy in the period 1851–1911.

(Online Appendix F) provides a summary of the variables considered in these empirical exercises and reports their definition and data source, while descriptive statistics and correlation matrices are reported in Tables F2 to F5 (Online Appendix F).[53]

6.2. Empirical Results

We start presenting the results concerning public goods provision. First, the results on kindergartens in 1869 suggest, as shown in Table 6, that district capitals were approximately 55% more likely to provide the local population with a kindergarten. Moreover, district capitals had approximately 0.003 pupils per inhabitant more than municipalities in the control group.

Second, the results on 1884 municipal expenses, reported in Table 7, suggest that district capitals tended to spend more in discretionary expenses compared with non-capital cities. In particular, we do not find evidence on statistically significant differences in total expenses per inhabitant, while we estimate a premium for district capitals when considering discretionary expenses per inhabitant. This last result is confirmed when proxying public goods provision through the share of discretionary expenses relative to total expenses, as well as when disentangling education and infrastructure expenses.

Table 8 reports the results concerning transport network accessibility. Looking at column (3), we estimate that district capitals were approximately 31% more likely to be endowed with a train station at a time when the process of construction of the railway network was still underway.[54]

Overall, these results suggest that district capitals tended to provide more public goods to the local population and enjoy greater connectivity compared with non-capital cities, thus making them suitable for higher urban and industrial development.

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53. We consider the same sets of municipal and provincial controls as for Equation (4). We control also for the provincial endowment of public primary schools in 1862 relative to the Kingdom of Naples' territory in the regression models for kindergartens in 1869. We control also for total expenses over total revenues in 1884 in the regression models for municipalities' expenses in 1884.

54. We confirm the evidence presented in Tables 6, 7, and 8 when clustering standard errors at the district level. The results are reported in Online Appendix G.

7. Conclusions

We analyzed the 1806 Napoleonic administrative reform implemented in the Kingdom of Naples as a historical experiment to study how exogenous changes in the territorial administrative hierarchy of a country may have long-term consequences for development. In this respect, we contribute to the literature studying the state capacity building and its role in influencing economic development by analyzing the long-run consequences of a radical reform "imposed from outside" by the Napoleonic authorities on the Kingdom of Naples. Specifically, we studied how the Napoleonic administrative reform shaped development in the Italian *Mezzogiorno* through a process of "districtualization" and the selection of certain cities in the role of district capitals. Our results reveal that municipalities that were selected as district capitals enjoyed higher (and time-persistent) urban and industrial development compared with municipalities that did not experience a status change in the country's geographical-administrative hierarchy and did not become "centers of power" at the local level. We also explained the relationship between territorial administrative hierarchy and development through two main mechanisms—provision of public goods and accessibility to transport networks.

The lesson from the Napoleonic administrative reform process supports recent contributions that focus on how political and administrative hierarchy can shape the process of urban growth and local development (Bo 2020; Becker, Heblich, and Sturm 2021; Chambru, Henry, and Marx 2022; Bai and Jia 2023). Thus, we can identify political decision-making through administrative reforms as a further mechanism that drives urbanization processes in addition to market forces and advantageous natural conditions (Henderson 2003; Nunn and Puga 2012).

Our results have relevant policy implications for country- and local-level economic development strategies. First, targeted interventions aimed at strengthening the administrative functions of minor cities could favor both a more evenly balanced distribution of functions and a more widespread dissemination and coordination of government powers. This, in turn, could contribute to reduce within-country heterogeneity in bureaucratic efficiency and improve the functioning of local institutions, with positive

effects on (local and aggregate) development and growth (North 1990; Hall and Jones 1999; Acemoglu, Johnson, and Robinson 2001; Rodrik, Subramanian, and Trebbi 2004; Égert 2016).

Second, our results may be particularly suited to transition economies and developing countries characterized by a process of administrative (re)organization that is not yet complete and by the presence of cities that are still evolving. Governments of relatively "young" countries could intervene to shape the national economic geography and promote homogeneous economic development by strengthening sub-national and city-level administrative functions as well as by increasing the centrality of such cities and (still-evolving) urban agglomerations that suffer from a lack of (natural) resources and poor accessibility to network infrastructures.

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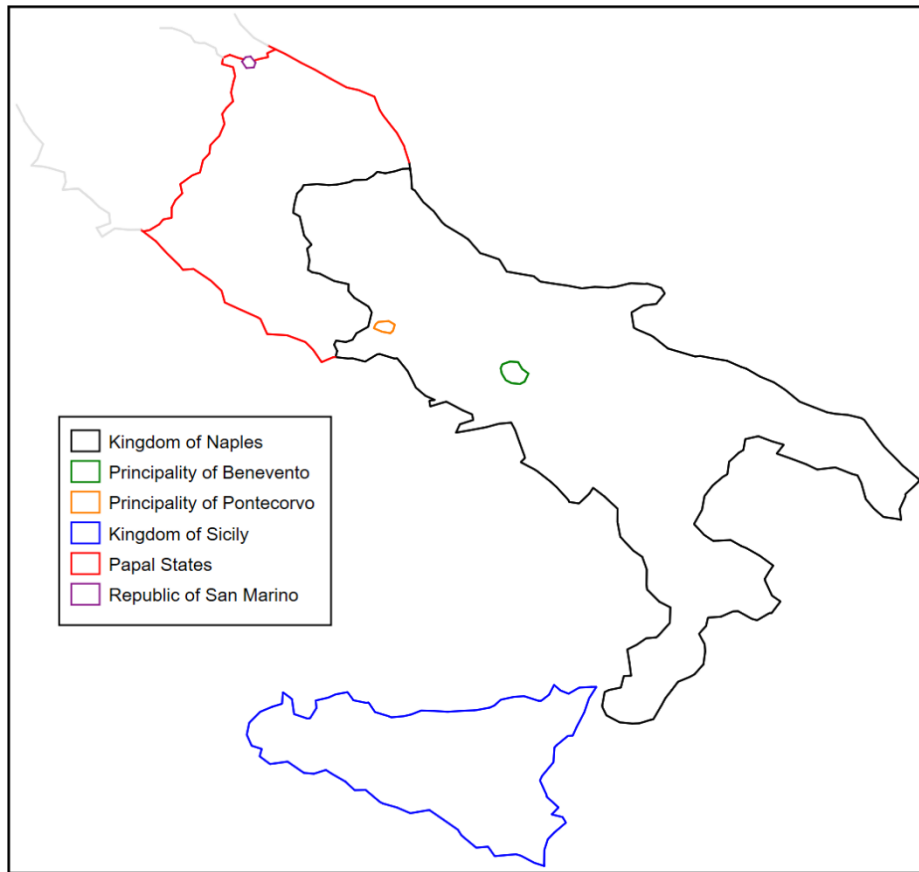
FIGURE 1. The Kingdom of Naples and selected neighboring States in 1806. Authors' elaboration on digitalized cartography provided by Centennia Historical Atlas Research Edition (year 1806).
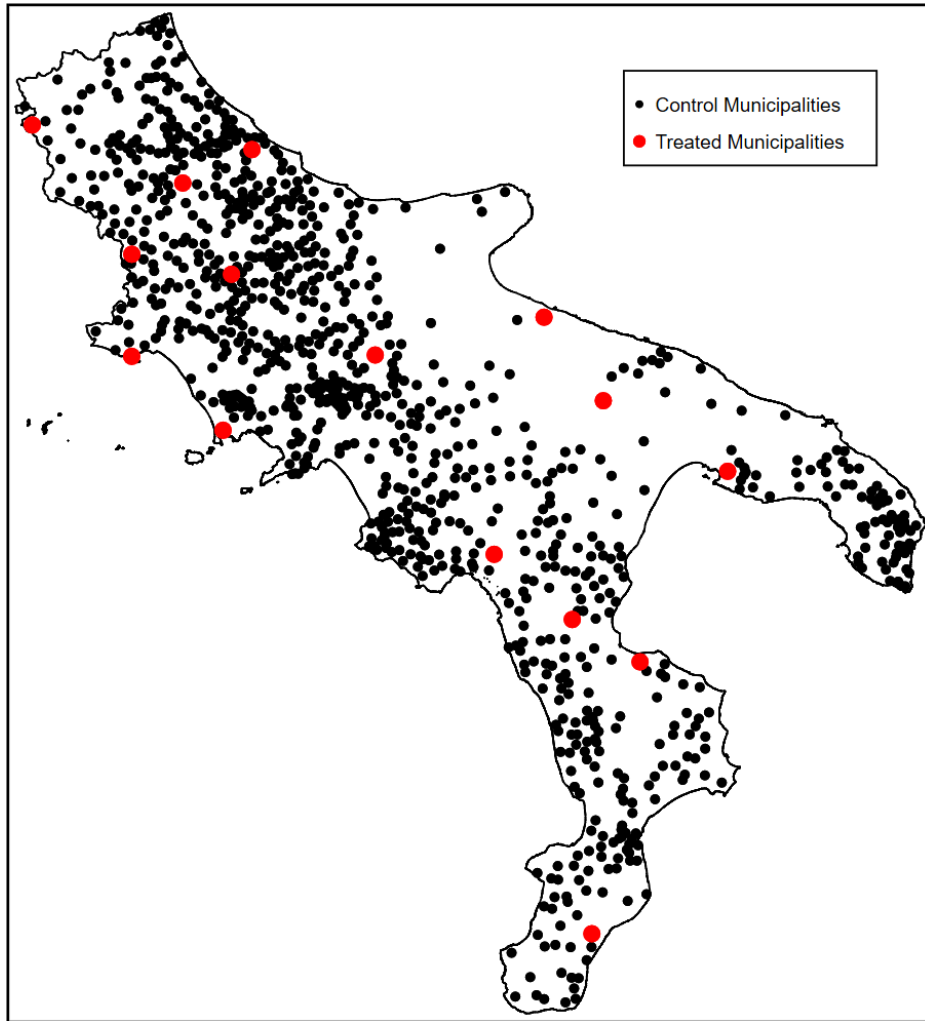
FIGURE 2. Treated and control municipalities in the sample. Authors' elaboration on digitalized cartography provided by GEO-LARHRA and ISTAT.

TABLE 1. Population effects of district capital city status.

Dependent Variable	Population					
Period Covered	1648–1911					
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	5.803****	4.681****	3.143***	1.804*	1.953**	1.967**
	(1.468)	(1.290)	(1.017)	(0.986)	(0.987)	(0.987)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bourbonic District Time Trends	No	Yes	Yes	Yes	Yes	Yes
Kingdom of Italy District Time Trends	No	Yes	Yes	Yes	Yes	Yes
Municipality-Level Controls						
Distance to Own Provincial Capital City	No	No	Yes	Yes	Yes	Yes
Geographical Controls × Year FE	No	No	Yes	No	Yes	Yes
Historical Controls × Year FE	No	No	No	Yes	Yes	Yes
Province Controls	No	No	No	No	No	Yes
No. of Observations	9,740	9,740	9,740	9,740	9,740	9,740
No. of Municipalities	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959
No. of Years	10	10	10	10	10	10
R^2	0.83	0.85	0.88	0.89	0.89	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.
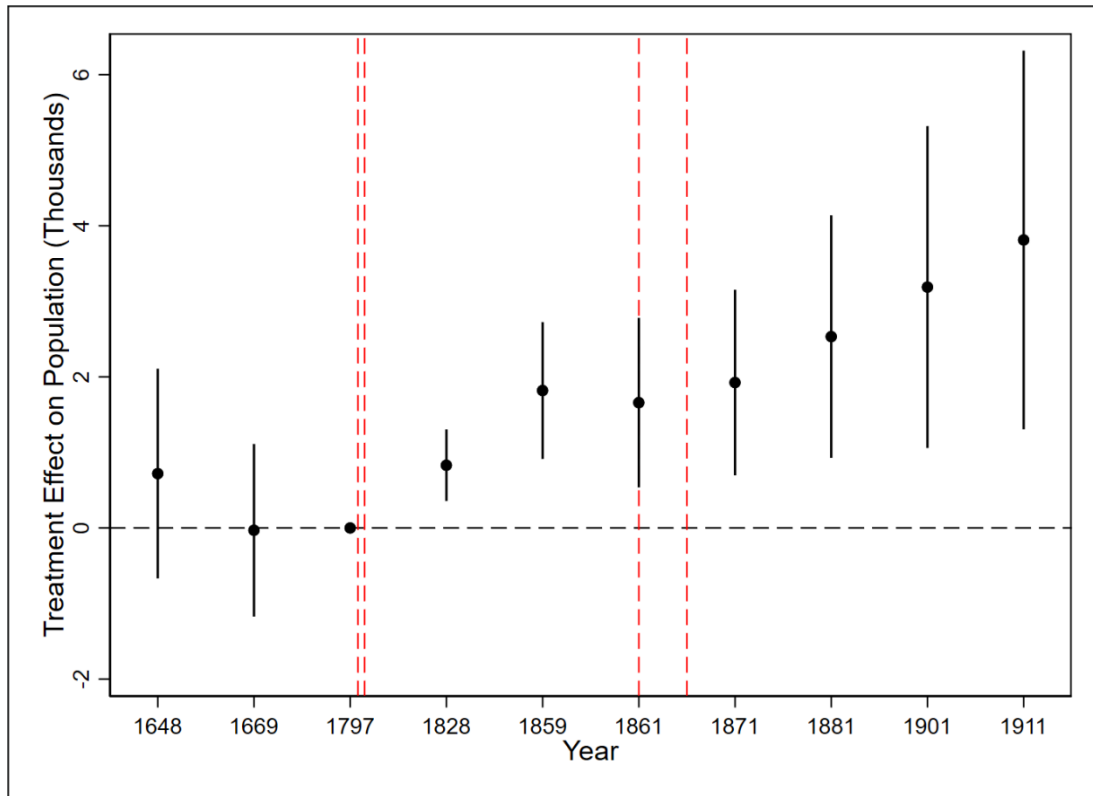
FIGURE 3. Population effects of district capital city status: event study analysis. The dependent variable is population, defined in thousand inhabitants. The model includes fixed effects, time trends, and controls as for column (6) in Table 1. The pre-1806 Napoleonic administrative reform year 1797 is set as the reference period. Confidence intervals for lead and lag dummy variable coefficients are set at 90%. The red dashed lines refer to: the 1806 Napoleonic administrative reform; the 1816 restoration of the Bourbons; the 1861 Italian unification; and the 1865 Lanza Law.

TABLE 2. Population effects of district capital city status: assessing period-specific effects.

Dependent Variable	Population
Period Covered	1648–1911
	(1)
District Capital	
Bourbonic and Pre-Lanza Law Period	1.198*
	(0.717)
Kingdom of Italy in the Post-Lanza Law Period	2.623**
	(1.254)
Municipality FE	Yes
Year FE	Yes
Bourbonic District Time Trends	Yes
Kingdom of Italy District Time Trends	Yes
Municipality-Level Controls	
Distance to Own Provincial Capital City	Yes
Geographical Controls × Year FE	Yes
Historical Controls × Year FE	Yes
Province Controls	Yes
No. of Observations	9,740
No. of Municipalities	974
No. of Treated Municipalities	15
No. of Control Municipalities	959
No. of Years	10
R^2	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level. The Bourbonic period refers to observation years 1828, 1859, and 1861. The Kingdom of Italy (post-Lanza period) refers to observation years 1871, 1881, 1901, and 1911.

TABLE 3. Population effects of district capital city status: testing for spillover effects.

Dependent Variable	Population				
Period Covered	1648–1911				
	(1)	(2)	(3)	(4)	(5)
District Capital	2.004**	1.992**	2.060**	2.179**	2.077**
	(0.988)	(0.987)	(0.992)	(1.008)	(1.009)
Neighbors Within 15 km	0.208	…	…	…	…
	(0.133)				
Neighbors Within 25 km	…	0.067	…	…	…
		(0.091)			
Neighbors Within 50 km	…	…	0.099	…	…
			(0.094)		
Neighbors Within 75 km	…	…	…	0.210	…
				(0.172)	
Neighbors Within 100 km	…	…	…	…	0.106
					(0.194)
Municipality FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Bourbonic District Time Trends	Yes	Yes	Yes	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes	Yes	Yes	Yes
Municipality-Level Controls					
Distance to Own Provincial Capital City	Yes	Yes	Yes	Yes	Yes
Geographical Controls × Year FE	Yes	Yes	Yes	Yes	Yes
Historical Controls × Year FE	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes
No. of Observations	9,740	9,740	9,740	9,740	9,740
No. of Municipalities	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959
No. of Years	10	10	10	10	10
R^2	0.89	0.89	0.89	0.89	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.

TABLE 4. Industrial development in 1850–1860.

Dependent Variable	Industrial City					
Estimation Method	Probit		LPM		IV-LPM	
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	1.617****	1.541****	0.242**	0.236**	0.321**	0.311**
	(0.408)	(0.418)	(0.110)	(0.111)	(0.138)	(0.140)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959
Pseudo-R^2	0.16	0.17	…	…	…	…
R^2	…	…	0.07	0.08	0.07	0.07
First-Stage F Statistic on Excluded IVs	…	…	…	…	12.98	12.93
Hansen J Statistic (p-value)	…	…	…	…	0.124	0.125

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the municipality level. The set of municipality-level controls includes: population density in 1828; population growth in 1797–1828; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1828. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1828; provincial railway density in 1859 [only columns (2), (4), and (6)]. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE 5. Employment in 1911.

Dependent Variable	Employment Per Inhabitant					
	Total Employment		Industrial Employment		Services Employment	
Estimation Method	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	0.030**	0.061***	0.027**	0.057**	0.002**	0.004***
	(0.012)	(0.023)	(0.012)	(0.023)	(0.001)	(0.001)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959
R^2	0.07	0.06	0.07	0.06	0.08	0.06
First-Stage F Statistic on Excluded IVs	...	13.57	...	13.57	...	13.57
Hansen J Statistic (p-value)	...	0.827	...	0.805	...	0.293

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the municipality level. The set of municipality-level controls includes: population density in 1911; population growth in 1797–1911; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1911. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1911; provincial railway density in 1911; provincial literacy rate in 1911. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE 6. Kindergartens in 1869.

Dependent Variable	Kindergartens				
	Presence			Pupils Per Inhabitant	
Estimation Method	Probit	LPM	IV-LPM	OLS	IV
	(1)	(2)	(3)	(4)	(5)
District Capital	1.895****	0.447****	0.552****	0.003**	0.003*
	(0.460)	(0.131)	(0.154)	(0.001)	(0.001)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959
Pseudo-R^2	0.36	…	…	…	…
R^2	…	0.23	0.22	0.08	0.08
First-Stage F Statistic on Excluded IVs	…	…	12.97	…	12.97
Hansen J Statistic (p-value)	…	…	0.245	…	0.139

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable capturing the number of pupils per inhabitant is based on 1861 population figures. Standard errors (in parentheses) are clustered at the municipality level. The set of municipality-level controls includes: population density in 1861; population growth in 1797–1861; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1861. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1861; provincial railway density in 1861; provincial literacy rate in 1861; provincial-to-Kingdom of Naples public primary schools in 1862. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE 7. Municipal expenses in 1884.

Dependent Variable	Total Expenses Per Inhabitant		Discretionary Expenses Per Inhabitant		Share Discretionary Expenses		Share Discretionary Expenses in Education		Share Discretionary Expenses in Infrastructure	
Estimation Method	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
District Capital	0.499	1.068	2.291***	2.861**	0.155****	0.171****	0.308****	0.377****	0.191**	0.219**
	(1.393)	(2.364)	(0.786)	(1.305)	(0.038)	(0.045)	(0.068)	(0.062)	(0.078)	(0.103)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959	959	959	959	959
R^2	0.26	0.26	0.25	0.25	0.19	0.19	0.40	0.39	0.12	0.12
First-Stage F Statistic on Excluded IVs	…	13.51	…	13.51	…	13.51	…	13.51	…	13.51
Hansen J Statistic (p-value)	…	0.278	…	0.741	…	0.983	…	0.562	…	0.197

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Per inhabitant dependent variables are based on 1881 population figures. Standard errors (in parentheses) are clustered at the municipality level. The set of municipality-level controls includes: population density in 1881; population growth in 1797–1881; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1881; total expenses to revenues in 1884. The set of province-level controls includes: share of provincial population to Kingdom of Naples' population in 1881; provincial railway density in 1881; provincial literacy rate in 1881. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE 8. Train stations in 1873.

Dependent Variable	Train Stations		
Estimation Method	Probit	LPM	IV-LPM
	(1)	(2)	(3)
District Capital	1.252**	0.204*	0.312*
	(0.580)	(0.122)	(0.162)
Municipality-Level Controls	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes
No. of Municipalities	974	974	974
No. of Treated Municipalities	15	15	15
No. of Control Municipalities	959	959	959
Pseudo-R^2	0.29	…	…
R^2	…	0.15	0.14
First-Stage F Statistic on Excluded IVs	…	…	13.61
Hansen J Statistic (p-value)	…	…	0.728

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the municipality level. The set of municipality-level controls includes: population density in 1871; population growth in 1797–1871; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1871. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1871; provincial railway density in 1871; provincial literacy rate in 1871. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

Online Appendix For

NAPOLEONIC ADMINISTRATIVE REFORMS AND DEVELOPMENT. LESSONS FROM THE ITALIAN *MEZZOGIORNO*

GIULIO CAINELLI

University of Padova (IT)

CARLO CICCARELLI

University of Roma "Tor Vergata" (IT), and CAGE–Warwick (UK)

ROBERTO GANAU

University of Padova (IT), and LSE (UK)

Table of Content

1

APPENDIX A—Evolution of provincial and district capital cities

This Appendix presents the evolution of provinces and provincial capitals from the pre-Napoleonic period until the establishment of the Kingdom of Italy occurred in 1861 (Table A1). It also presents the evolution of districts and district capitals in the Napoleonic period (Table A2), Bourbonic period (Table A3) and post-Italian unification period (Table A4). Finally, it presents the list of municipalities selected as district capitals by the Napoleonic authorities according to Law No. 132 of August 8, 1806, and that maintained their status unchanged until 1911 (Table A5). It also maps the states of the Italian peninsula at the time of the Italian Unification process 1859–1861 (Figure A1).

TABLE A1: Evolution of provincial capital cities.

Pre-Napoleonic Period		Napoleonic Period		
Province	Capital City	Province 1806–1815	Capital City 1806–1811	Capital City 1811–1815
Abruzzo Citeriore	Chieti	Abruzzo Citeriore	Chieti	Chieti
Abruzzo Ulteriore	Aquila	Seconda d'Abruzzo Ulteriore	Aquila	Aquila
		Prima d'Abruzzo Ulteriore	Teramo	Teramo
Basilicata	Matera	Basilicata	Potenza	Potenza
Calabria Citeriore	Cosenza	Calabria Citeriore	Cosenza	Cosenza
Calabria Ulteriore	Catanzaro	Calabria Ulteriore	Monteleone	Monteleone
Capitanata	Lucera	Capitanata	Foggia	Foggia
Principato Citeriore	Salerno	Principato Citeriore	Salerno	Salerno
Principato Ulteriore	Montefusco	Principato Ulteriore	Avellino	Avellino
Terra d'Otranto	Lecce	Terra d'Otranto	Lecce	Lecce
Terra di Lavoro	Napoli	Terra di Lavoro	Santa Maria Maggiore	Capua
Terra di Bari	Trani	Terra di Bari	Bari	Bari
Contado del Molise	Administratively dependent on Capitanata	Molise	Campobasso	Campobasso
		Napoli	Napoli	Napoli

Bourbonic Period					Kingdom of Italy	
Province 1816	Capital City 1816	Province 1817–1860	Capital City 1817	Capital City 1818–1860	Province 1861–1911	Capital City 1861–1911
Abruzzo Citeriore	Chieti	Abruzzo Citeriore	Chieti	Chieti	Abruzzo Citeriore	Chieti
Seconda d'Abruzzo Ulteriore	Aquila	Seconda d'Abruzzo Ulteriore	Aquila	Aquila	Seconda d'Abruzzo Ulteriore	Aquila
Prima d'Abruzzo Ulteriore	Teramo	Prima d'Abruzzo Ulteriore	Teramo	Teramo	Prima d'Abruzzo Ulteriore	Teramo
Basilicata	Potenza	Basilicata	Potenza	Potenza	Basilicata	Potenza
Calabria Citeriore	Cosenza	Calabria Citeriore	Cosenza	Cosenza	Calabria Citeriore	Cosenza
Calabria Ulteriore	Monteleone	Calabria Ulteriore II	Catanzaro	Catanzaro	Calabria Ulteriore II	Catanzaro
		Calabria Ulteriore I	Reggio	Reggio	Calabria Ulteriore I	Reggio
Capitanata	Foggia	Capitanata	Foggia	Foggia	Capitanata	Foggia
Principato Citeriore	Salerno	Principato Citeriore	Salerno	Salerno	Principato Citeriore	Salerno
Principato Ulteriore	Avellino	Principato Ulteriore	Avellino	Avellino	Principato Ulteriore	Avellino
Terra d'Otranto	Lecce	Terra d'Otranto	Lecce	Lecce	Terra d'Otranto	Lecce
Terra di Lavoro	Capua	Terra di Lavoro	Capua	Caserta	Terra del Lavoro	Caserta
Terra di Bari	Bari	Terra di Bari	Bari	Bari	Terra di Bari	Bari
Molise	Campobasso	Molise	Campobasso	Campobasso	Molise	Campobasso
Napoli	Napoli	Napoli	Napoli	Napoli	Napoli	Napoli
					Benevento	Benevento

Notes: See Giustiniani (1797–1805) for the pre-Napoleonic period. Napoleonic period: (i) provinces are defined as for Law No. 132 of August 8, 1806 and Law No. 189 of September 27, 1806; (ii) provincial capital cities in the period 1806–1811 are defined as for Law No. 132 of August 8, 1806 and Law No. 189 of September 27, 1806; (iii) provincial capital cities in the period 1811–1815 are defined as for Decree No. 922 of May 4, 1811. Bourbonic period: (i) provinces and provincial capital cities in 1816 are defined as for the Napoleonic period 1811–1815; (ii) provinces in the period 1817–1860 are defined as for Royal Decree No. 360 of May 1, 1816, which entered into force on January 1, 1817; (iii) provincial capital cities in 1817 are defined as for Royal Decree No. 360 of May 1, 1816, which entered into forced on January 1, 1817; (iv) provincial capital cities in the period 1818–1860 are defined as for Decree No. 1416 of December 15, 1818. See MAIC (1865) for the Kingdom of Italy period. MAIC stands for Ministry of Agriculture, Industry and Trade.

TABLE A2. Evolution of district capital cities in the Napoleonic period (1806–1815).

Province	Napoleonic Period (1806–1815)		
	District Capital City		
	Law 132, 8 August 1806	Law 272, 8 December 1806	Decree 922, 4 May 1811
Abruzzo Citeriore	*Chieti* Lanciano	*Chieti* Lanciano	*Chieti* Lanciano Vasto
Prima d'Abruzzo Ulteriore	*Teramo* Civita di Penne	*Teramo* Civita di Penne	*Teramo* Civita di Penne
Seconda d'Abruzzo Ulteriore	*Aquila* Civita Ducale Sulmona	*Aquila* Civita Ducale Sulmona	*Aquila* Civita Ducale Sulmona Avezzano
Basilicata	*Potenza* Matera Lagonegro	*Potenza* Matera Lagonegro	*Potenza* Matera Lagonegro Melfi
Calabria Citeriore	*Cosenza* Rossano Castrovillari Amantea	*Cosenza* Rossano Castrovillari Amantea	*Cosenza* Rossano Castrovillari Paola
Calabria Ulteriore	*Monteleone* Reggio Gerace Catanzaro	*Monteleone* Reggio Gerace Catanzaro	*Monteleone* Reggio Gerace Catanzaro
Capitanata	*Foggia* Manfredonia	*Foggia* Manfredonia Larino	*Foggia* San Severo Bovino
Principato Citeriore	*Salerno* Bonati Sala	*Salerno* Bonati Sala	*Salerno* Sala Campagna Vallo
Principato Ulteriore	*Avellino* Ariano Montefusco	*Avellino* Ariano Montefusco	*Avellino* Ariano Sant'Angelo de' Lombardi
Terra d'Otranto	*Lecce* Taranto Mesagne	*Lecce* Taranto Mesagne	*Lecce* Taranto Mesagne
Terra di Lavoro	*Santa Maria Maggiore* Gaeta Sora	*Santa Maria Maggiore* Gaeta Sora	*Capua* Gaeta Sora Piedimonte d'Alife Nola
Terra di Bari	*Bari* Barletta Altamura	*Bari* Barletta Altamura	*Bari* Barletta Altamura
Molise	*Campobasso* Isernia	*Campobasso* Isernia	*Campobasso* Isernia Larino
Napoli	*Napoli* Pozzuoli Castellammare	*Napoli* Pozzuoli Castellammare	*Napoli* Pozzuoli Castellammare Casoria

Notes: Municipalities that were capital city at both district and province level are denoted in italics.

TABLE A3. Evolution of district capital cities in the Bourbonic period (1816–1860).

Province	Bourbonic Period (1816–1860)			
	District Capital City			
	Law 570, 12 December 1816	Marzolla (1832) for 1828	De Sanctis (1840)	MAIC (1864) for 1859
Abruzzo Citeriore	*Chieti*	*Chieti*	*Chieti*	*Chieti*
	Lanciano	Lanciano	Lanciano	Lanciano
	Vasto	Vasto	Vasto	Vasto
Prima d'Abruzzo Ulteriore	*Teramo*	*Teramo*	*Teramo*	*Teramo*
	Civita di Penne	Civita di Penne		Civita di Penne
			Città Sant'Angelo	
Seconda d'Abruzzo Ulteriore	*Aquila*	*Aquila*	*Aquila*	*Aquila*
	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale
	Sulmona	Sulmona	Sulmona	Sulmona
	Avezzano	Avezzano	Avezzano	Avezzano
Basilicata	*Potenza*	*Potenza*	*Potenza*	*Potenza*
	Matera	Matera	Matera	Matera
	Lagonegro	Lagonegro	Lagonegro	Lagonegro
	Melfi	Melfi	Melfi	Melfi
Calabria Citeriore	*Cosenza*	*Cosenza*	*Cosenza*	*Cosenza*
	Rossano	Rossano	Rossano	Rossano
	Castrovillari	Castrovillari	Castrovillari	Castrovillari
	Paola	Paola	Paola	Paola
Calabria Ulteriore I	*Reggio*	*Reggio*	*Reggio*	*Reggio*
	Gerace	Gerace	Gerace	Gerace
	Palmi	Palmi	Palmi	Palmi
Calabria Ulteriore II	*Catanzaro*	*Catanzaro*	*Catanzaro*	*Catanzaro*
	Monteleone	Monteleone	Monteleone	Monteleone
	Nicastro	Nicastro	Nicastro	Nicastro
	Cotrone	Cotrone	Cotrone	Cotrone
Capitanata	*Foggia*	*Foggia*	*Foggia*	*Foggia*
	San Severo	San Severo	San Severo	San Severo
	Bovino	Bovino	Bovino	Bovino
Principato Citeriore	*Salerno*	*Salerno*	*Salerno*	*Salerno*
	Sala	Sala	Sala	Sala
	Campagna	Campagna	Campagna	Campagna
	Vallo	Vallo	Vallo	Vallo
Principato Ulteriore	*Avellino*	*Avellino*	*Avellino*	*Avellino*
	Ariano	Ariano	Ariano	Ariano
	Sant'Angelo de' Lombardi	Sant'Angelo de' Lombardi	Sant'Angelo de' Lombardi	Sant'Angelo de' Lombardi
Terra d'Otranto	*Lecce*	*Lecce*	*Lecce*	*Lecce*
	Taranto	Taranto	Taranto	Taranto
	Brindisi	Brindisi	Brindisi	Brindisi
	Gallipoli	Gallipoli	Gallipoli	Gallipoli
Terra di Lavoro	*Capua*			
		Caserta	*Caserta*	*Caserta*
	Gaeta	Gaeta	Gaeta	Gaeta
	Sora	Sora	Sora	Sora
	Piedimonte d'Alife	Piedimonte d'Alife	Piedimonte d'Alife	Piedimonte d'Alife
	Nola	Nola	Nola	Nola
Terra di Bari	*Bari*	*Bari*	*Bari*	*Bari*
	Barletta	Barletta	Barletta	Barletta
	Altamura	Altamura	Altamura	Altamura
Molise	*Campobasso*	*Campobasso*	*Campobasso*	*Campobasso*
	Isernia	Isernia	Isernia	Isernia
	Larino	Larino	Larino	Larino
Napoli	*Napoli*	*Napoli*	*Napoli*	*Napoli*
	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli
	Castellammare	Castellammare	Castellammare	Castellammare
	Casoria	Casoria	Casoria	Casoria

Notes: Municipalities that were capital city at both district and province level are denoted in italics. MAIC stands for Ministry of Agriculture, Industry and Trade.

TABLE A4. District capital cities in the Kingdom of Italy (1861–1911).

Province	District Capital City
	MAIC (1865) for 1861
Abruzzo Citeriore	*Chieti*
	Lanciano
	Vasto
Prima d'Abruzzo Ulteriore	*Teramo*
	Civita di Penne
Seconda d'Abruzzo Ulteriore	*Aquila*
	Civita Ducale
	Sulmona
	Avezzano
Basilicata	*Potenza*
	Matera
	Lagonegro
	Melfi
Calabria Citeriore	*Cosenza*
	Rossano
	Castrovillari
	Paola
Calabria Ulteriore I	*Reggio*
	Gerace
	Palmi
Calabria Ulteriore II	*Catanzaro*
	Monteleone
	Nicastro
	Cotrone
Capitanata	*Foggia*
	San Severo
	Bovino
Principato Citeriore	*Salerno*
	Sala
	Campagna
	Vallo
Principato Ulteriore	*Avellino*
	Ariano
	Sant'Angelo de' Lombardi
Terra d'Otranto	*Lecce*
	Taranto
	Brindisi
	Gallipoli
Terra del Lavoro	*Caserta*
	Gaeta
	Sora
	Piedimonte d'Alife
	Nola
Terra di Bari	*Bari*
	Barletta
	Altamura
Molise	*Campobasso*
	Isernia
	Larino
Napoli	*Napoli*
	Pozzuoli
	Castellammare
	Casoria
Benevento	*Benevento*
	Cerreto Sannita
	San Bartolomeo in Galdo

Notes: Municipalities that were capital city at both district and province level are denoted in italics. MAIC stands for Ministry of Agriculture, Industry and Trade.

TABLE A5. District capital cities included in the sample and eligible but excluded from the sample due to missing population data.

Included in the Sample or Eligible but Excluded from the Sample	Napoleonic Period (1806–1815)				Bourbonic Period (1816–1860)			Kingdom of Italy (1861–1911)
	Law 132, 8 August 1806	Law 272, 8 December 1806	Decree 922, 4 May 1811	Law 570, 12 December 1816	Marzolla (1832) for 1828	De Sanctis (1840)	MAIC (1864) for 1859	MAIC (1865) for 1861
Included	Lanciano	Lanciano	Lanciano	Lanciano	Lanciano	Lanciano	Lanciano	Lanciano
Included	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale	Civita Ducale
Included	Sulmona	Sulmona	Sulmona	Sulmona	Sulmona	Sulmona	Sulmona	Sulmona
Included	Lagonegro	Lagonegro	Lagonegro	Lagonegro	Lagonegro	Lagonegro	Lagonegro	Lagonegro
Included	Rossano	Rossano	Rossano	Rossano	Rossano	Rossano	Rossano	Rossano
Included	Castrovillari	Castrovillari	Castrovillari	Castrovillari	Castrovillari	Castrovillari	Castrovillari	Castrovillari
Included	Gerace	Gerace	Gerace	Gerace	Gerace	Gerace	Gerace	Gerace
Excluded—Missing pre-1806 population data	Sala	Sala	Sala	Sala	Sala	Sala	Sala	Sala
Included	Ariano	Ariano	Ariano	Ariano	Ariano	Ariano	Ariano	Ariano
Included	Taranto	Taranto	Taranto	Taranto	Taranto	Taranto	Taranto	Taranto
Included	Gaeta	Gaeta	Gaeta	Gaeta	Gaeta	Gaeta	Gaeta	Gaeta
Included	Sora	Sora	Sora	Sora	Sora	Sora	Sora	Sora
Included	Barletta	Barletta	Barletta	Barletta	Barletta	Barletta	Barletta	Barletta
Included	Altamura	Altamura	Altamura	Altamura	Altamura	Altamura	Altamura	Altamura
Included	Isernia	Isernia	Isernia	Isernia	Isernia	Isernia	Isernia	Isernia
Included	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli	Pozzuoli
Excluded—Missing pre-1806 population data	Castellammare	Castellammare	Castellammare	Castellammare	Castellammare	Castellammare	Castellammare	Castellammare

Notes: MAIC stands for Ministry of Agriculture, Industry and Trade.
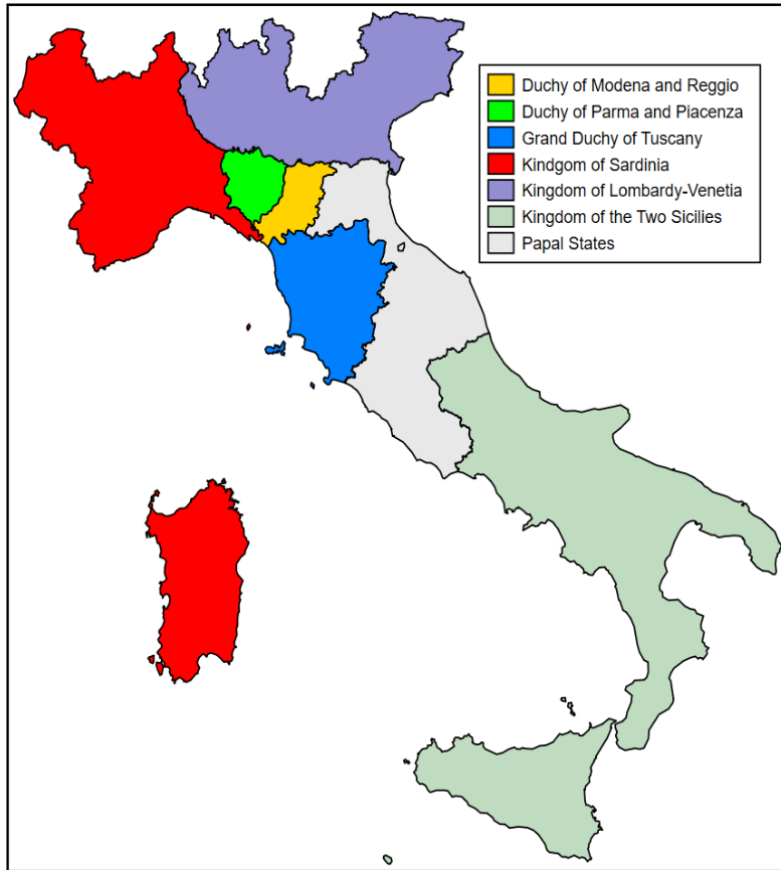
FIGURE A1. The Italian unification states in 1859–1861. The map shows the states of the Italian peninsula at the time of the Italian Unification process. Authors' elaboration on Shepherd (1926, p. 161) and digitalized cartography provided by GEO-LARHRA.

APPENDIX B—Population analysis: data and descriptive statistics

This Appendix presents the data source and the definition of the variables used in the population analysis (Table B1) as well as the descriptive statistics of the time-varying dependent and control variables (Table B2); the correlation matrix of the time-varying control variables (Table B3); the descriptive statistics of the time-invariant municipality-level control variables (Table B4); the correlation matrix of the time-invariant municipality-level control variables (Table B5).

TABLE B1. Data source and variable definition.

Variable	Definition	Source
Municipality-Level		
Population	Population in thousand inhabitants	Various sources [1]
District Capital	Dummy for district capital city municipalities	Various sources [2]
Distance to the Own Provincial Capital City	Distance between the municipality centroid and the centroid of its own provincial capital city (km)	ISTAT [3]
Coastal Municipality	Dummy for coastal municipalities	ISTAT [3]
Land Surface	Land surface (km²)	ISTAT [3]
Altitude	Altitude (km)	ISTAT [3]
Terrain Ruggedness Index	Terrain Ruggedness Index	EEA [4]
Latitude	Latitude (degrees)	ISTAT [3]
Within-District Centrality in 1806	Average pairwise distance among municipalities within a district in 1806 (km)	Law 14, 19 January 1807; ISTAT [3]
State-Owned Status in 1797	Dummy for state-owned municipalities	Giustiniani (1797–1805)
Seat of a Bishop in 1797	Dummy for bishop seat municipalities	Giustiniani (1797–1805)
Seat of an Archbishop in 1797	Dummy for archbishop seat municipalities	Giustiniani (1797–1805)
Princedom in 1797	Dummy for princedom municipalities	Giustiniani (1797–1805)
Population Above 5,000 in 1300–1500	Dummy for municipalities that have recorded a population above 5,000 inhabitants in 1300–1500	Malanima (1998)
Spread of the Plague in 1658	Dummy for municipalities that have been hit by the plague in 1658	Fusco (2007)
Distance to the Closest Ancient Roman Road	Distance between the centroid of a municipality and the closest ancient Roman road (km)	McCormick et al. (2013); ISTAT [3]
Exposure to Earthquakes in 1005–1805	No. of earthquakes weighted by intensity in [0, 1] and scaled by distance to the epicenter in 1005–1805	Rovida et al. (2020)
Province-Level		
Provincial-to-Kingdom of Naples Population	Share of provincial population to total population in the Kingdom of Naples' territory	Various sources [1]
Provincial Railway Density	Provincial density of the railway network (km²)	Ciccarelli and Groote (2017)

Notes: (1) Giustiniani (1797–1805), Marzolla (1832), and MAIC (1864, 1865, 1874, 1882, 1901, 1912). (2) Law No. 132 of August 8, 1806, Law No. 272 of December 8, 1806, Decree No. 922 of May 4, 1811, Law No. 570 of December 12, 1816, Marzolla (1832), De Sanctis (1840), MAIC (1864, 1865). (3) Elaboration on digital cartography. (4) Elaboration on EEA's Global Digital Elevation Model (DEM) derived from GTOPO30 with 1 km-by-1 km resolution. MAIC stands for Ministry of Agriculture, Industry and Trade. ISTAT stands for Italian National Institute of Statistics. EEA stands for European Environment Agency.

TABLE B2. Descriptive statistics of time-varying dependent and control variables.

Variable	Mean	Std. Dev.	Min.	Max.
Municipal Population	2.13	2.24	0.01	65.24
Municipality's Distance to the Own Provincial Capital City	39.87	22.88	1.97	126.56
Provincial-to-Kingdom of Naples Population	0.07	0.03	0.03	0.15
Provincial Railway Density	0.03	0.07	0.00	1.00

Notes: Descriptive statistics are based on 9,740 municipality-year observations.

TABLE B3. Correlation matrix of time-varying control variables.

Variable		[1]	[2]	[3]
Municipality's Distance to the Own Provincial Capital City	[1]	1		
Provincial-to-Kingdom of Naples Population	[2]	0.13	1	
Provincial Railway Density	[3]	-0.10	0.00	1

Notes: Correlation coefficients are based on 9,740 municipality-year observations.

TABLE B4. Descriptive statistics of time-invariant municipality-level control variables.

Variable	Mean	Std. Dev.	Min.	Max.
District Capital	0.02	0.12	0	1
Coastal Nature	0.11	0.31	0	1
Land Surface	32.29	28.78	0.12	431.38
Altitude	455.74	284.76	2.00	1,433.00
Terrain Ruggedness Index	230.45	137.03	1.90	698.74
Latitude	40.87	1.10	37.96	42.86
Within-District Centrality in 1806	27.61	8.94	8.60	103.61
State-Owned Status in 1979	0.02	0.12	0	1
Seat of a Bishop in 1797	0.02	0.16	0	1
Seat of an Archbishop in 1797	0.00	0.06	0	1
Princedom in 1797	0.04	0.20	0	1
Population Above 5,000 in 1300–1500	0.01	0.11	0	1
Spread of the Plague in 1658	0.39	0.49	0	1
Distance to the Closest Ancient Roman Road	11.34	7.69	0.17	42.52
Exposure to Earthquakes in 1005–1805	1.76	0.50	0.78	4.08

Notes: Descriptive statistics are based on 974 municipality-level observations.

TABLE B5: Correlation matrix of time-invariant municipality-level control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
District Capital	[1]	1														
Coastal Nature	[2]	0.09	1													
Land Surface	[3]	0.40	0.14	1												
Altitude	[4]	-0.05	-0.31	0.13	1											
Terrain Ruggedness Index	[5]	-0.03	-0.10	0.04	0.52	1										
Latitude	[6]	0.00	-0.26	-0.03	0.21	0.11	1									
Within-District Centrality in 1806	[7]	0.00	0.14	0.20	0.05	0.12	-0.12	1								
State-Owned Status in 1979	[8]	0.46	0.14	0.27	-0.09	-0.01	0.03	-0.01	1							
Seat of a Bishop in 1797	[9]	0.41	0.09	0.12	-0.04	0.00	0.01	0.07	0.36	1						
Seat of an Archbishop in 1797	[10]	0.38	0.08	0.22	-0.05	-0.05	-0.01	-0.01	0.25	-0.01	1					
Princedom in 1797	[11]	0.02	0.03	0.06	0.01	-0.02	-0.06	0.02	-0.03	0.00	-0.01	1				
Population Above 5,000 in 1300–1500	[12]	0.64	0.16	0.35	-0.05	-0.04	0.00	-0.01	0.49	0.33	0.41	0.02	1			
Spread of the Plague in 1658	[13]	0.00	-0.15	-0.14	0.12	0.23	0.13	-0.02	0.07	0.00	-0.02	0.02	0.02	1		
Distance to the Closest Ancient Roman Road	[14]	-0.06	-0.01	0.11	0.21	0.09	0.04	-0.02	-0.04	-0.06	-0.01	0.00	-0.02	-0.17	1	
Exposure to Earthquakes in 1005–1805	[15]	0.03	-0.25	-0.17	0.21	0.27	0.54	-0.02	0.04	0.07	-0.04	0.00	-0.03	0.32	-0.19	1

Notes: Correlation coefficients are based on 974 municipality-level observations.

APPENDIX C—Population analysis: identification, robustness, and placebo tests

This Appendix reports the results of the identification, robustness and placebo exercises presented in sub-Sections 4.1 and 4.2 in the main text.

Table C1 reports the estimated coefficients of the event study analysis aimed at assessing the potential existence of anticipation effects.

Table C2 reports the number of municipalities by district, considering the district levels used for clustering standard errors. Table C3 reports the number of municipalities by province, considering the province levels used for clustering standard errors. Table C4 reports the results of the inference exercise with standard errors clustered at alternative district and province levels. Table C5 complements the previous exercise by considering standard errors corrected for spatial dependence of unknown form a la Conley (1999) with distance cut-off set at 50 km, 100 km, 150 km, and 200 km.

Table C6 reports the balance test on the kernel matching procedures, while Table C7 reports the results obtained by estimating Equation (1) in the main text on the matched sub-samples.

Table C8 reports the results of the baseline model estimated by: including in the control group only those municipalities with a 1797 population level equal to or greater than the minimum 1797 population level in the treatment group; and excluding the district capitals of *Barletta* and *Pozzuoli* from the treatment group, as no control municipality is observed within their districts.

Table C9 lists the 26 municipalities that have been district capitals only for a period of time between August 1806 and 1911—provided they have never been provincial capitals—and which, therefore, have been excluded from the estimation sample. Table C10 reports the results of a series of robustness tests performed on an enlarged estimation sample that includes also 23 (out of the 26) additional district capitals for which we have been able to collect population figures over the entire observation period. Column (1) reports the results obtained by estimating Equation (1) in the main text; in column (2), we disentangle the district capital status' population effects between the municipalities that have been capital

cities over the entire period August 1806–1911 and those that have been capital cities only for a period of time between August 1806 and 1911; finally, column (3) reports the results obtained by estimating a modified version of Equation (1) in the main text where the district capital dummy variable is replaced by a continuous variable capturing the (cumulated) number of years a municipality has been a district capital.

Figure C1 provides evidence of the population effects of the district capital city status based on the Synthetic Control Method, and plots the bias-corrected gap in population (defined in thousand inhabitants) between district capitals and synthetic control municipalities estimated using the approach proposed by Abadie and L'Hour (2021) and Wiltshire (2022).

Figure C2 plots the cumulative distribution of coefficients obtained by estimating Equation (1) in the main text with 1,000 randomly drawn placebo treated units, while Table C11 summarizes the results of the inference exercise on the 1,000 randomly drawn placebo treated units.

Table C12 reports the results of a cross-sectional correlation analysis aimed at disentangling the population effects of being a district capital city from those (potentially) related to the within-district geographical centrality of district capitals—that is, the selection criterion adopted by the Napoleonic authorities to identify district capital cities in 1806.

TABLE C1. Population effects of district capital city status: event study analysis.

Dependent Variable	Population
Period Covered	1648–1911
	(1)
District Capital – Year 1648	0.720
	(0.843)
District Capital – Year 1669	-0.031
	(0.694)
District Capital – Year 1797	Ref.
District Capital – Year 1828	0.830***
	(0.288)
District Capital – Year 1859	1.819****
	(0.550)
District Capital – Year 1861	1.659**
	(0.681)
District Capital – Year 1871	1.924**
	(0.746)
District Capital – Year 1881	2.533***
	(0.975)
District Capital – Year 1901	3.188**
	(1.294)
District Capital – Year 1911	3.812**
	(1.522)
Municipality FE	Yes
Year FE	Yes
Bourbonic District Time Trends	Yes
Kingdom of Italy District Time Trends	Yes
Municipality-Level Controls	
Distance to Own Provincial Capital City	Yes
Geographical Controls × Year FE	Yes
Historical Controls × Year FE	Yes
Province Controls	Yes
No. of Observations	9,740
No. of Municipalities	974
No. of Treated Municipalities	15
No. of Control Municipalities	959
No. of Years	10
R^2	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.

TABLE C2. Number of municipalities by district as for the inference robustness test.

District	Napoleonic District (1806)		Bourbonic District (1828)		Kingdom of Italy District (1861)	
	No.	%	No.	%	No.	%
Altamura	4	0.41	4	0.41	4	0.41
Amantea	16	1.64	…	…	…	…
Aquila	33	3.39	28	2.87	28	2.87
Ariano	18	1.85	19	1.95	15	1.54
Avellino	28	2.87	35	3.59	30	3.08
Avezzano	…	…	27	2.77	27	2.77
Bari	9	0.92	9	0.92	9	0.92
Barletta	2	0.21	1	0.10	1	0.10
Benevento	…	…	…	…	17	1.75
Bonati	44	4.52	…	…	…	…
Bovino	…	…	9	0.92	5	0.51
Brindisi	…	…	7	0.72	7	0.72
Campagna	…	…	26	2.67	24	2.46
Campobasso	23	2.36	41	4.21	31	3.18
Caserta	…	…	30	3.08	30	3.08
Casoria	…	…	6	0.62	6	0.62
Castellammare	…	…	2	0.21	2	0.21
Castrovillari	25	2.57	27	2.77	27	2.77
Catanzaro	30	3.08	25	2.57	25	2.57
Cerreto	…	…	…	…	13	1.33
Chieti	37	3.80	28	2.87	28	2.87
Civita Ducale	16	1.64	6	0.62	6	0.62
Cosenza	30	3.08	29	2.98	29	2.98
Cotrone	…	…	17	1.75	17	1.75
Foggia	15	1.54	4	0.41	4	0.41
Gaeta	25	2.57	21	2.16	20	2.05
Gallipoli	…	…	30	3.08	30	3.08
Gerace	18	1.85	12	1.23	12	1.23
Isernia	50	5.13	30	3.08	37	3.80
Lagonegro	28	2.87	25	2.57	24	2.46
Lanciano	47	4.83	27	2.77	27	2.77
Larino	17	1.75	24	2.46	24	2.46
Lecce	53	5.44	27	2.77	27	2.77
Manfredonia	4	0.41	…	…	…	…
Matera	20	2.05	14	1.44	14	1.44
Melfi	…	…	10	1.03	10	1.03
Mesagne	11	1.13	…	…	…	…
Montefusco	42	4.31	…	…	…	…
Monteleone	20	2.05	14	1.44	14	1.44
Napoli	5	0.51	2	0.21	2	0.21
Nicastro	…	…	9	0.92	9	0.92
Nola	…	…	11	1.13	8	0.82
Palmi	…	…	11	1.13	11	1.13
Paola	…	…	15	1.54	15	1.54
Civita di Penne	29	2.98	25	2.57	25	2.57
Piedimonte d'Alife	…	…	28	2.87	15	1.54
Potenza	24	2.46	23	2.36	25	2.57
Pozzuoli	1	0.10	1	0.10	1	0.10
Reggio	14	1.44	5	0.51	5	0.51
Rossano	18	1.85	9	0.92	9	0.92
Sala Consilina	26	2.67	17	1.75	16	1.64
Salerno	34	3.49	19	1.95	19	1.95
San Bartolomeo in Galdo	…	…	…	…	10	1.03
San Severo	…	…	10	1.03	10	1.03
Santa Maria di Capua	60	6.16	…	…	…	…
Sant'Angelo de' Lombardi	…	…	27	2.77	23	2.36
Solmona	31	3.18	19	1.95	19	1.95
Sora	34	3.49	26	2.67	25	2.57
Taranto	13	1.33	13	1.33	13	1.33
Teramo	20	2.05	24	2.46	24	2.46
Vallo	…	…	37	3.80	37	3.80
Vasto	…	…	29	2.98	29	2.98
Total	974	100.00	974	100.00	974	100.00

Notes: The 1806 distribution of municipalities is defined as for Law No. 14 of January 19, 1807. The 1828 distribution of municipalities is defined as for Marzolla (1832). The 1861 distribution of municipalities is defined as for MAIC (1865). MAIC stands for Ministry of Agriculture, Industry and Trade.

TABLE C3. Number of municipalities by province as for the inference robustness test.

Pre-Napoleonic Period (1797)			Napoleonic Period					
			1806			1807–1815		
Province	No.	%	Province	No.	%	Province	No.	%
Abruzzo Citeriore	84	8.62	Abruzzo Citeriore	84	8.62	Abruzzo Citeriore	84	8.62
Abruzzo Ulteriore	129	13.24	Prima d'Abruzzo Ulteriore	49	5.03	Prima d'Abruzzo Ulteriore	49	5.03
		0.00	Seconda d'Abruzzo Ulteriore	80	8.21	Seconda d'Abruzzo Ulteriore	80	8.21
Basilicata	72	7.39	Basilicata	72	7.39	Basilicata	72	7.39
Calabria Citeriore	80	8.21	Calabria Citeriore	89	9.14	Calabria Citeriore	80	8.21
Calabria Ulteriore	93	9.55	Calabria Ulteriore	82	8.42	Calabria Ulteriore	93	9.55
		0.00			0.00			0.00
Principato Citeriore	99	10.16	Principato Citeriore	104	10.68	Principato Citeriore	99	10.16
Principato Ulteriore	81	8.32	Principato Ulteriore	88	9.03	Principato Ulteriore	81	8.32
		0.00			0.00			0.00
Capitanata	118	12.11	Capitanata	36	3.70	Capitanata	23	2.36
		0.00	Molise	73	7.49	Molise	95	9.75
Terra di Lavoro	127	13.04	Terra di Lavoro	119	12.22	Terra di Lavoro	116	11.91
		0.00	Napoli	6	0.62	Napoli	11	1.13
Terra d'Otranto	77	7.91	Terra d'Otranto	77	7.91	Terra d'Otranto	77	7.91
Terra di Bari	14	1.44	Terra di Bari	15	1.54	Terra di Bari	14	1.44
Total	974	100.00	Total	974	100.00	Total	974	100.00
Bourbonic Period						Kingdom of Italy		
1816			1817–1860			1861		
Province	No.	%	Province	No.	%	Province	No.	%
Abruzzo Citeriore	84	8.62	Abruzzo Citeriore	84	8.62	Abruzzo Citeriore	84	8.62
Prima d'Abruzzo Ulteriore	49	5.03	Prima d'Abruzzo Ulteriore	49	5.03	Prima d'Abruzzo Ulteriore	49	5.03
Seconda d'Abruzzo Ulteriore	80	8.21	Seconda d'Abruzzo Ulteriore	80	8.21	Seconda d'Abruzzo Ulteriore	80	8.21
Basilicata	72	7.39	Basilicata	72	7.39	Basilicata	73	7.49
Calabria Citeriore	80	8.21	Calabria Citeriore	80	8.21	Calabria Citeriore	80	8.21
Calabria Ulteriore	93	9.55	Calabria Ulteriore I	28	2.87	Calabria Ulteriore I	28	2.87
		0.00	Calabria Ulteriore II	65	6.67	Calabria Ulteriore II	65	6.67
Principato Citeriore	99	10.16	Principato Citeriore	99	10.16	Principato Citeriore	96	9.86
Principato Ulteriore	81	8.32	Principato Ulteriore	81	8.32	Principato Ulteriore	68	6.98
		0.00			0.00	Benevento	40	4.11
Capitanata	23	2.36	Capitanata	23	2.36	Capitanata	19	1.95
Molise	95	9.75	Molise	95	9.75	Molise	92	9.45
Terra di Lavoro	116	11.91	Terra di Lavoro	116	11.91	Terra di Lavoro	98	10.06
Napoli	11	1.13	Napoli	11	1.13	Napoli	11	1.13
Terra d'Otranto	77	7.91	Terra d'Otranto	77	7.91	Terra d'Otranto	77	7.91
Terra di Bari	14	1.44	Terra di Bari	14	1.44	Terra di Bari	14	1.44
Total	974	100.00	Total	974	100.00	Total	974	100.00

Notes: The 1797 distribution of municipalities is defined as for Giustiniani (1797–1805). The 1806 distribution of municipalities is defined as for Law No. 14 of January 19, 1807. The 1807–1815 distribution of municipalities is defined as for Decree No. 922 of May 4, 1811. The 1816 distribution of municipalities is defined as for Law No. 570 of December 12, 1816. The 1817–1860 distribution of municipalities is defined as for Marzolla (1832). The 1861 distribution of municipalities is defined as for MAIC (1865). MAIC stands for Ministry of Agriculture, Industry and Trade.

TABLE C4. Population effects of district capital city status: inference through alternative clustering of the standard errors.

Dependent Variable	Population							
Period Covered	1648–1911							
Clustering Level	District				Province			
	Napoleonic (1806)	Bourbonic (1828)	Kingdom of Italy (1861)	Pre-Napoleonic	Napoleonic (1806)	Napoleonic (1807–1815) / Bourbonic (1816)	Bourbonic (1817–1860)	Kingdom of Italy (1861)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
District Capital	1.967*	1.967*	1.967*	1.967**	1.967**	1.967**	1.967**	1.967**
	(1.063)	(1.056)	(1.057)	(0.718)	(0.742)	(0.751)	(0.877)	(0.877)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bourbonic District Time Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-Level Controls								
Distance to Own Provincial Capital City	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographical Controls × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Historical Controls × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Observations	9,740	9,740	9,740	9,740	9,740	9,740	9,740	9,740
No. of Municipalities	974	974	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959	959	959
No. of Years	10	10	10	10	10	10	10	10
R^2	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors are reported in parentheses.

TABLE C5. Population effects of district capital city status: inference via spatial standard errors.

Dependent Variable	Population			
Period Covered	1648–1911			
Distance Cut-Off (Spatial Correlation)	50 km	100 km	150 km	200 km
	(1)	(2)	(3)	(4)
District Capital	1.967****	1.967****	1.967****	1.967****
	(0.503)	(0.497)	(0.434)	(0.416)
Municipality FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Bourbonic District Time Trends	Yes	Yes	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes	Yes	Yes
Municipality-Level Controls				
Distance to Own Provincial Capital City	Yes	Yes	Yes	Yes
Geographical Controls × Year FE	Yes	Yes	Yes	Yes
Historical Controls × Year FE	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes
No. of Observations	9,740	9,740	9,740	9,740
No. of Municipalities	974	974	974	974
No. of Treated Municipalities	15	15	15	15
No. of Control Municipalities	959	959	959	959
No. of Years	10	10	10	10
R^2	0.89	0.89	0.89	0.89

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Conley (1999) standard errors are reported in parentheses.

TABLE C6. Balance test on the variables used in the kernel matching.

Matching Variable	Difference in Mean Value (Treatment Group – Control Group) [p-value]							
	Sample							
			Matched Sample					
	Un-Matched		Half-Optimal Bandwidth		Optimal Bandwidth		Double-Optimal Bandwidth	
Within-District Centrality in1806	0.107	[0.964]	-2.617	[0.501]	1.109	[0.748]	0.627	[0.846]
State-Owned Municipality in 1797	0.458	[0.000]	-0.126	[0.552]	-0.216	[0.295]	-0.113	[0.588]
Seat of a Bishop in 1797	0.517	[0.000]	-0.007	[0.979]	-0.060	[0.810]	0.082	[0.731]
Seat of an Archbishop in 1797	0.199	[0.000]	0.000	[1.000]	0.000	[1.000]	-0.057	[0.723]
Princedom in 1797	0.025	[0.633]	0.114	[0.397]	0.102	[0.395]	0.088	[0.422]
Spread of the Plague in 1658	0.013	[0.918]	-0.156	[0.473]	-0.303	[0.162]	-0.209	[0.336]
Population Above 5,000 in 1300–1500	0.596	[0.000]	0.007	[0.978]	0.068	[0.785]	0.073	[0.751]
Distance to the Closest Ancient Roman Road	-3.557	[0.075]	-1.225	[0.700]	-1.196	[0.681]	-1.533	[0.580]
Exposure to Earthquakes in 1005–1805	0.121	[0.354]	0.053	[0.852]	-0.010	[0.968]	0.198	[0.553]
No. Municipalities	974		958		968		969	
No. Treated Municipalities	15		8		9		10	
No. Control Municipalities	959		950		959		959	

TABLE C7. Population effects of district capital city status: analysis on matched samples.

Dependent Variable	Population					
Period Covered	1648–1911					
Bandwidth in Kernel Matching	Half-Optimal		Optimal		Double-Optimal	
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	4.092****	3.786****	3.793****	3.403****	2.909****	3.112****
	(0.885)	(0.398)	(0.769)	(0.319)	(0.683)	(0.317)
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bourbonic District Time Trends	Yes	Yes	Yes	Yes	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-Level Controls						
Distance to Own Provincial Capital City	Yes	Yes	Yes	Yes	Yes	Yes
Geographical Controls × Year FE	Yes	Yes	Yes	Yes	Yes	Yes
(of which) Within-District Centrality in 1806	No	Yes	No	Yes	No	Yes
Historical Controls × Year FE	No	Yes	No	Yes	No	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of Observations	9,580	9,580	9,680	9,680	9,690	9,690
No. of Municipalities	958	958	968	968	969	969
No. of Treated Municipalities	8	8	9	9	10	10
No. of Control Municipalities	950	950	959	959	959	959
No. of Years	10	10	10	10	10	10
R^2	0.98	0.99	0.98	0.99	0.97	0.99

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.

TABLE C8. Population effects of district capital city status: further robustness analyses.

Dependent Variable	Population	
Period Covered	1648–1911	
Robustness Test	Control Municipalities with 1797 Population ≥ Minimum 1797 Population in Treatment Group	Excluding *Barletta* and *Pozzuoli* from the Treatment Group
	(1)	(2)
District Capital	2.501*	2.004**
	(1.448)	(1.017)
Municipality FE	Yes	Yes
Year FE	Yes	Yes
Bourbonic District Time Trends	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes
Municipality-Level Controls		
Distance to Own Provincial Capital City	Yes	Yes
Geographical Controls × Year FE	Yes	Yes
Historical Controls × Year FE	Yes	Yes
Province Controls	Yes	Yes
No. of Observations	1,270	9,720
No. of Municipalities	127	972
No. of Treated Municipalities	15	13
No. of Control Municipalities	112	959
No. of Years	10	10
R^2	0.93	0.88

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.

TABLE C9. Municipalities that have been district capital only for a period of time.

Municipality	Included in the Enlarged Sample or Eligible but Excluded from the Enlarged Sample	Period as District Capital
Amantea	Included	August 1806–April 1811
Avezzano	Included	May 1811–1911
Bovino	Included	May 1811–1911
Brindisi	Included	December 1816–1911
Campagna	Included	May 1811–1911
Casoria	Excluded—Missing pre-1806 population data	May 1811–1911
Cerreto Sannita	Included	February 1861–1911
Città Sant'Angelo	Included	1837–1848
Cotrone	Included	December 1816–1911
Gallipoli	Included	December 1816–1911
Nicastro	Included	December 1816–1911
Larino	Included	December 1816–1911
Manfredonia	Included	August 1806–April 1811
Melfi	Included	May 1811–1911
Mesagne	Included	August 1806–November 1816
Nola	Included	May 1811–1911
Palmi	Included	December 1816–1911
Paola	Included	May 1811–1911
Civita di Penne	Included	August 1806–1837, 1848–1911
Piedimonte d'Alife	Included	May 1811–1911
San Bartolomeo in Galdo	Excluded—Missing pre-1806 population data	February 1861–1911
San Severo	Included	May 1811–1911
Sant'Angelo de' Lombardi	Included	May 1811–1911
Vallo	Included	May 1811–1911
Vasto	Excluded—Missing pre-1806 population data	May 1811–1911
Bonati	Included	August 1806–April 1811

TABLE C10. Population effects of district capital city status: enlarged treatment group.

Dependent Variable	Population		
Period Covered	1648–1911		
	(1)	(2)	(3)
District Capital – Enlarged Treatment Group	2.372****	…	…
	(0.514)		
District Capital – Original Estimation Sample	…	3.122***	…
		(1.073)	
District Capital – Additional Treated Units	…	2.062****	…
		(0.581)	
No. of Years as District Capital	…	…	0.046****
			(0.011)
Municipality FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Bourbonic District Time Trends	Yes	Yes	Yes
Kingdom of Italy District Time Trends	Yes	Yes	Yes
Municipality-Level Controls			
Distance to Own Provincial Capital City	Yes	Yes	Yes
Geographical Controls × Year FE	Yes	Yes	Yes
Historical Controls × Year FE	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes
No. of Observations	9,970	9,970	9,970
No. of Municipalities	997	997	997
No. of Treated Municipalities	38	38	38
No. of Control Municipalities	959	959	959
No. of Years	10	10	10
R^2	0.90	0.90	0.90

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors (in parentheses) are clustered at the municipality level.

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FIGURE C1. Population effects of district capital city status: Synthetic Control Method. The plot reports the bias-corrected gap in population (defined in thousand inhabitants) between district capitals and synthetic control municipalities estimated using the approach proposed by Abadie and L'Hour (2021) and Wiltshire (2022). Synthetic control municipalities are chosen among all the non-capital cities based on the following municipality-level predictor variables: population in 1648, 1669, and 1797; baseline geographical controls (distance to the own provincial capital, coastal dummy, land surface, altitude, latitude, terrain ruggedness, within-district centrality in 1806); and baseline historical (pre-1806) controls (1797 state-owned municipality dummy, 1797 bishop seat dummy, 1797 archbishop seat dummy, 1797 princedom municipality dummy, 1658 plague dummy, "large cities" dummy in the period 1300–1500, distance to the closest ancient Roman road, exposure to earthquakes in the period 1005–1805). The red dashed line refers to the 1806 Napoleonic administrative reform.
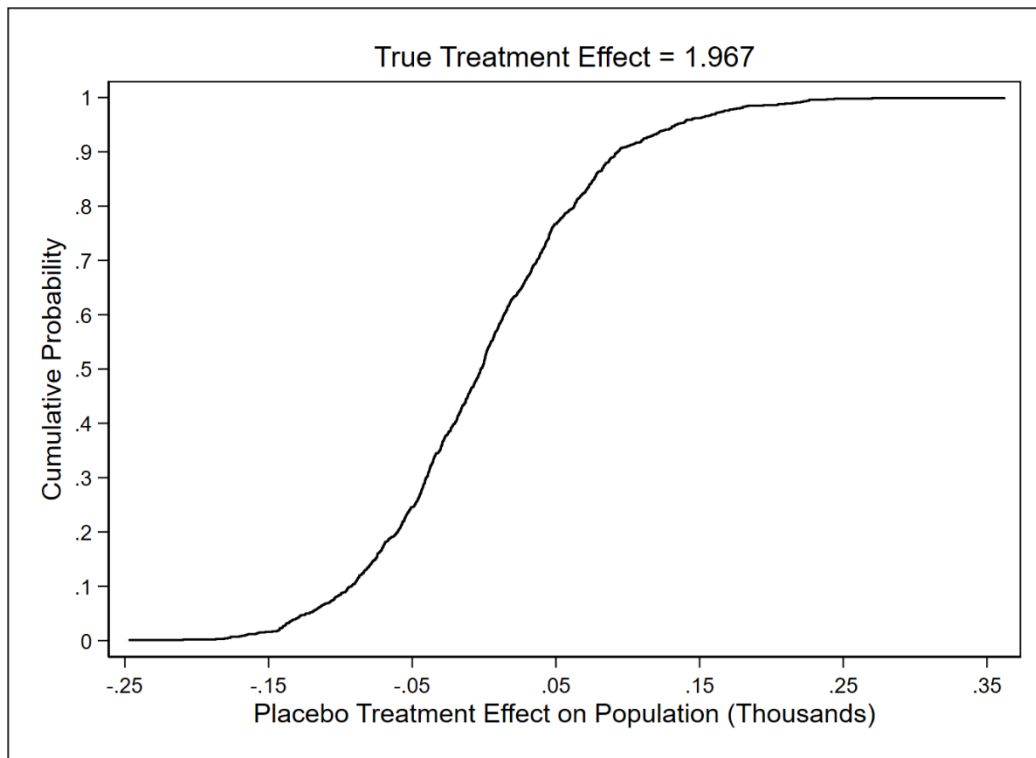
FIGURE C2. Cumulative distribution of 1,000 randomly drawn placebo treatment coefficients. The plot reports the cumulative distribution of coefficients obtained by estimating Equation (1)—see column (6) in Table 1 in the main text—with 1,000 randomly drawn placebo treated units. The *y*-axis indicates the point in the distribution, while the *x*-axis indicates the value of the placebo coefficients.

TABLE C11. Inference on 1,000 randomly drawn placebo treated units.

Significance Level	Regressions with Significant Placebo Treatment Effect	
	No.	%
10%	53	5.30
5%	47	4.70
1%	10	1.00
0.1%	0	0.00

Notes: Percentage values are defined with respect to 1,000 estimations of Equation (1)—see column (6) in Table 1 in the main text.

TABLE C12. Institutions versus geography: a correlation analysis.

Dependent Variable	Population						
Observation Year	1828	1859	1861	1871	1881	1901	1911
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
District Capital	6.668	8.328	8.588	8.896	9.745	11.309	12.401
	(1.064)****	(1.367)****	(1.504)****	(1.604)****	(1.762)****	(2.540)****	(2.888)****
	[1.081]****	[1.368]****	[1.509]****	[1.593]****	[1.776]****	[2.574]****	[2.930]****
Within-District Centrality in 1806	-0.000	-0.008	-0.009	-0.006	-0.010	-0.016	-0.019
	(0.004)	(0.005)	(0.005)*	(0.005)	(0.006)	(0.010)	(0.012)
	[0.005]	[0.006]	[0.006]	[0.006]	[0.006]	[0.010]	[0.012]
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls							
Provincial-to-Kingdom of Naples Population	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Provincial Railway Density	No	Yes	Yes	Yes	Yes	Yes	Yes
Provincial Literacy Rate	No	No	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959	959
R^2	0.54	0.57	0.61	0.60	0.62	0.58	0.56

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable is defined in thousand inhabitants. Standard errors clustered at the municipality level are reported in parentheses. Standard errors clustered at the district level (Bourbonic district for the observation years 1828 and 1859, while Kingdom of Italy district for the observation years 1861–1911) are reported in brackets. The set of municipality-level controls includes: coastal dummy; land surface; altitude; terrain ruggedness; latitude; year-specific distance to the own provincial capital city.

APPENDIX D—Industrial development analysis: data and descriptive statistics

In this Appendix, we summarize the variables (definition and data source) used in the industrial development analysis presented in Section 5 in the main text (Table D1) and report some descriptive statistics (Table D2) and correlation matrices (Tables D3 and D4) of the dependent and control variables.

TABLE D1. Data source and variable definition.

Variable	Definition	Source
Municipality-Level		
Industrial City in 1850–1860	Dummy for municipalities identified as production centers in 1850–1860	Petrocchi (1955); Mangone (1976)
Total Employment per Inhabitant in 1911	Total employment over population in 1911	MAIC (1912, 1913)
Industrial Employment per Inhabitant in 1911	Total employment over population in 1911	MAIC (1912, 1913)
Services Employment per Inhabitant in 1911	Industrial employment over population in 1911	MAIC (1912, 1913)
District Capital	Dummy for district capital city municipalities	Various sources [1]
Population Density (1828, 1911)	Population per km^2	Various sources [2]; ISTAT [3]
Population Growth in 1797-T (T = 1828, 1911)	Population growth between 1797 and T	Various sources [4]
Coastal Municipality	Dummy for coastal municipalities	ISTAT [3]
Land Surface	Land surface (km^2)	ISTAT [3]
Altitude	Altitude (km)	ISTAT [3]
Terrain Ruggedness Index	Terrain Ruggedness Index	EEA [5]
Latitude	Latitude (degrees)	ISTAT [3]
Distance to the Own Provincial Capital City (1828, 1911)	Distance between the municipality centroid and the centroid of its own provincial capital city (km)	ISTAT [3]
Within-District Centrality 1806	Average pairwise distance among municipalities within a district in 1806 (km)	Law 14, 19 January 1807; ISTAT [3]
State-Owned Status in 1797	Dummy for state-owned municipalities	Giustiniani (1797–1805)
Seat of a Bishop in 1797	Dummy for bishop seat municipalities	Giustiniani (1797–1805)
Seat of an Archbishop in 1797	Dummy for archbishop seat municipalities	Giustiniani (1797–1805)
Princedom in 1797	Dummy for princedom municipalities	Giustiniani (1797–1805)
Population Above 5,000 in 1797	Dummy for municipalities with a population greater than or equal to 5,000 inhabitants in 1797	Giustiniani (1797–1805)
Exposure to Earthquakes in 1005–1805	No. of earthquakes weighted by intensity in [0, 1] and scaled by distance to the epicenter in 1005–1805	Rovida et al. (2020)
Province-Level		
Provincial-to-Kingdom of Naples Population (1828, 1911)	Share of provincial population to total population in the Kingdom of Naples' territory	Various sources [2]
Provincial Railway Density (1859, 1911)	Provincial density of the railway network (km^2)	Ciccarelli and Groote (2017)
Provincial Literacy Rate (1911)	Provincial rate of literate adult population	Ciccarelli and Weisdorf (2019)

Notes: (1) Law No. 132 of August 8, 1806, Law No. 272 of December 8, 1806, Decree No. 922 of May 4, 1811, Law No. 570 of December 12, 1816, Marzolla (1832), De Sanctis (1840), MAIC (1864, 1865). (2) Marzolla (1832), MAIC (1912). (3) Elaboration on digital cartography. (4) Giustiniani (1797–1805), Marzolla (1832), MAIC (1874, 1912). (5) Elaboration on EEA's Global Digital Elevation Model (DEM) derived from GTOPO30 with 1 km-by-1 km resolution. MAIC stands for Ministry of Agriculture, Industry and Trade. ISTAT stands for Italian National Institute of Statistics. EEA stands for European Environment Agency.

TABLE D2. Descriptive statistics of the dependent and control variables.

Variable	Mean	Std. Dev.	Min.	Max.
Municipality-Level				
Industrial City in 1850–1860	0.02	0.12	0	1
Total Employment per Inhabitant in 1911	0.02	0.03	0.00	0.42
Industrial Employment per Inhabitant in 1911	0.02	0.03	0.00	0.42
Services Employment per Inhabitant in 1911	0.00	0.00	0.00	0.02
District Capital	0.02	0.12	0	1
Population Density in 1828	116.05	540.73	4.87	16,583.75
Population Density in 1911	148.02	405.89	12.75	11,708.13
Population Growth in 1797–1828	0.35	1.13	-0.88	21.50
Population Growth in 1797–1911	1.02	2.06	-0.88	36.10
Coastal Municipality	0.11	0.31	0	1
Land Surface	32.29	28.78	0.12	431.38
Altitude	455.74	284.76	2.00	1,433.00
Terrain Ruggedness Index	230.45	137.03	1.90	698.74
Latitude	40.87	1.10	37.96	42.86
Distance to the Own Provincial Capital City in 1828	37.99	21.71	3.63	121.73
Distance to the Own Provincial Capital City in 1911	37.57	21.79	3.63	121.73
Province-Level				
Provincial-to-Kingdom of Naples Population in 1828	0.07	0.03	0.03	0.15
Provincial-to-Kingdom of Naples Population in 1911	0.06	0.02	0.03	0.15
Provincial Railway Density in 1859	0.00	0.02	0.00	0.20
Provincial Railway Density in 1911	0.12	0.11	0.06	1.00
Provincial Literacy Rate in 1911	0.45	0.07	0.36	0.65

Notes: Descriptive statistics are based on 974 municipality-level observations.

TABLE D3. Industrial development in 1850–1860: correlation matrix of control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
District Capital	[1]	1										
Population Density in 1828	[2]	0.00	1									
Population Growth in 1797–1828	[3]	-0.02	-0.01	1								
Coastal Municipality	[4]	0.09	0.09	-0.01	1							
Land Surface	[5]	0.40	-0.11	0.01	0.14	1						
Altitude	[6]	-0.05	-0.10	0.02	-0.31	0.13	1					
Terrain Ruggedness Index	[7]	-0.03	0.04	0.05	-0.10	0.04	0.52	1				
Latitude	[8]	0.00	0.00	0.01	-0.26	-0.03	0.21	0.11	1			
Distance to the Own Provincial Capital City in 1828	[9]	0.07	-0.09	0.00	0.14	0.23	0.08	0.21	-0.09	1		
Provincial-to-Kingdom of Naples Population in 1828	[10]	0.01	0.12	0.01	0.05	-0.09	-0.22	0.20	-0.22	0.22	1	
Provincial Railway Density in 1859	[11]	0.07	0.10	-0.03	-0.02	-0.10	-0.18	-0.06	0.03	-0.08	0.43	1

Notes: Correlation coefficients are based on 974 municipality-level observations.

TABLE D4. Employment in 1911: correlation matrix of control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
District Capital	[1]	1											
Population Density in 1911	[2]	0.02	1										
Population Growth in 1797–1911	[3]	0.00	0.00	1									
Coastal Municipality	[4]	0.09	0.09	0.09	1								
Land Surface	[5]	0.40	-0.16	0.04	0.14	1							
Altitude	[6]	-0.05	-0.19	-0.15	-0.31	0.13	1						
Terrain Ruggedness Index	[7]	-0.03	-0.04	-0.11	-0.10	0.04	0.52	1					
Latitude	[8]	0.00	0.00	-0.04	-0.26	-0.03	0.21	0.11	1				
Distance to the Own Provincial Capital City in 1911	[9]	0.07	-0.14	-0.02	0.15	0.23	0.08	0.21	-0.09	1			
Provincial-to-Kingdom of Naples Population in 1911	[10]	0.08	0.17	0.05	0.10	-0.01	-0.46	-0.28	-0.24	0.14	1		
Provincial Railway Density in 1911	[11]	0.10	0.20	0.03	0.05	-0.02	-0.28	-0.24	-0.08	-0.11	0.65	1	
Provincial Literacy Rate in 1911	[12]	0.03	0.05	0.05	-0.18	-0.02	0.24	0.24	0.62	0.03	0.09	0.20	1

Notes: Correlation coefficients are based on 974 municipality-level observations.

APPENDIX E—Industrial development analysis: inference test

This Appendix reports the results obtained by estimating Equation (4) in the main text with standard errors clustered at the district level. Table E1 reports the results for industrial development in the Bourbonic period 1850–1860. Table E2 reports the results for (total, industrial, services) employment per inhabitant in 1911.

TABLE E1. Industrial development in 1850–1860: standard errors clustered at the district level.

Dependent Variable	Industrial City					
Estimation Method	Probit		LPM		IV-LPM	
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	1.617****	1.541****	0.242**	0.236**	0.321**	0.311**
	(0.336)	(0.348)	(0.109)	(0.110)	(0.138)	(0.140)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959
Pseudo-R^2	0.16	0.17	…	…	…	…
R^2	…	…	0.07	0.08	0.07	0.07
First-Stage F Statistic on Excluded IVs	…	…	…	…	12.35	11.98
Hansen J Statistic (p-value)	…	…	…	…	0.277	0.251

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the Bourbonic 1828 district level. The set of municipality-level controls includes: population density in 1828; population growth in 1797–1828; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1828. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1828; provincial railway density in 1859 [only columns (2), (4), and (6)]. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE E2. Employment in 1911: standard errors clustered at the district level.

Dependent Variable	Employment Per Inhabitant					
	Total Employment		Industrial Employment		Services Employment	
Estimation Method	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)
District Capital	0.030**	0.061***	0.027**	0.057***	0.002**	0.004***
	(0.012)	(0.022)	(0.013)	(0.022)	(0.001)	(0.001)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959
R^2	0.07	0.06	0.07	0.06	0.08	0.06
First-Stage F Statistic on Excluded IVs	…	14.32	…	14.32	…	14.32
Hansen J Statistic (p-value)	…	0.706	…	0.678	…	0.114

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the Kingdom of Italy district level. The set of municipality-level controls includes: population density in 1911; population growth in 1797–1911; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1911. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1911; provincial railway density in 1911; provincial literacy rate in 1911. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

APPENDIX F—Mechanism analysis: data and descriptive statistics

In this Appendix, we provide graphical information on the evolution of the railway network in the Kingdom of Italy in the period 1861-1911 (Figure F1). We also summarize the variables (definition and data source) used in the mechanism analysis presented in Section 6 in the main text (Table F1), and report some descriptive statistics (Table F2) and correlation matrices (Tables F3 to F5) of the dependent and control variables.
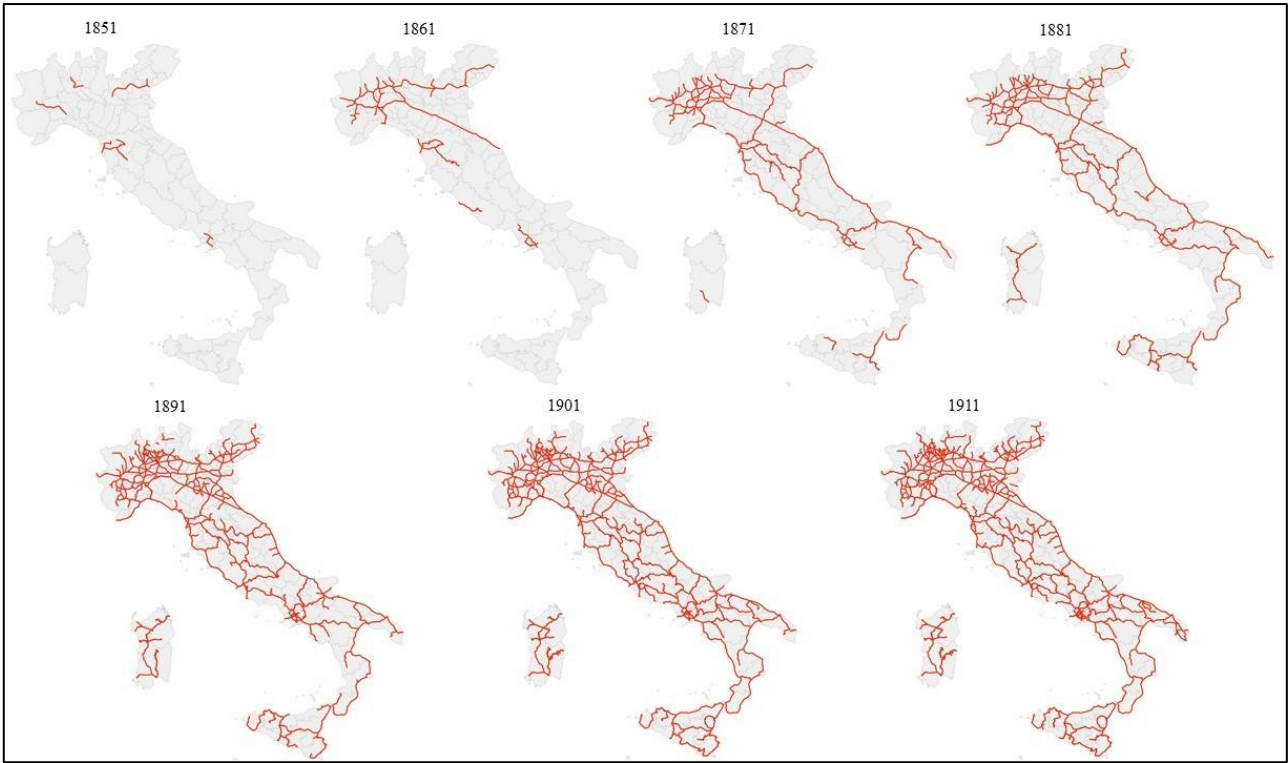
FIGURE F1. Evolution of the railway network in the Italian territory (1851–1911). The maps are taken from Basile, Ciccarelli, and Groote (2022).

TABLE F1. Data source and variable definition.

Variable	Definition	Source
Municipality-Level		
Presence of Kindergartens in 1869	Dummy for municipalities endowed with at least one kindergarten in 1869	DGS (1870)
Pupils per Inhabitants in 1869	No. pupils in kindergartens in 1869 over population in 1861	DGS (1870); MAIC (1865)
Total Expenses per Inhabitant in 1884	Total municipal expenses in 1884 over population in 1881	MAIC (1882, 1887)
Discretionary Expenses per Inhabitant in 1884	Discretionary municipal expenses in 1884 over population in 1881	MAIC (1882, 1887)
Share of Discretionary Expenses in 1884	Discretionary municipal expenses over total municipal expenses in 1884	MAIC (1887)
Share of Discretionary Expenses in Education in 1884	Discretionary municipal expenses over total municipal expenses for education in 1884	MAIC (1887)
Share of Discretionary Expenses in Infrastructure in 1884	Discretionary municipal expenses over total municipal expenses for infrastructures in 1884	MAIC (1887)
Presence of a Train Station in 1873	Dummy for municipalities endowed with a train station in 1874	DGS (1874)
District Capital	Dummy for district capital city municipalities	Various sources [1]
Population Density (1861, 1871, 1881)	Population per km^2	Various sources [2]; ISTAT [3]
Population Growth in 1797-T (T = 1861, 1871, 1881)	Population growth between 1797 and T	Various sources [4]
Coastal Municipality	Dummy for coastal municipalities	ISTAT [3]
Land Surface	Land surface (km^2)	ISTAT [3]
Altitude	Altitude (km)	ISTAT [3]
Terrain Ruggedness Index	Terrain Ruggedness Index	EEA [5]
Latitude	Latitude (degrees)	ISTAT [3]
Distance to the Own Provincial Capital City (1861, 1871, 1881)	Distance between the municipality centroid and the centroid of its own provincial capital city (km)	ISTAT [3]
Expenses to Revenues in 1884	Total expenses sustained by a municipality over total revenues in 1884	MAIC (1887)
Within-District Centrality in 1806	Average pairwise distance among municipalities within a district in 1806 (km)	Law 14, 19 January 1807; ISTAT [3]
State-Owned Status in 1797	Dummy for state-owned municipalities	Giustiniani (1797–1805)
Seat of a Bishop in 1797	Dummy for bishop seat municipalities	Giustiniani (1797–1805)
Seat of an Archbishop in 1797	Dummy for archbishop seat municipalities	Giustiniani (1797–1805)
Princedom in 1797	Dummy for princedom municipalities	Giustiniani (1797–1805)
Population Above 5,000 in 1797	Dummy for municipalities with a population greater than or equal to 5,000 inhabitants in 1797	Giustiniani (1797–1805)
Exposure to Earthquakes in 1005–1805	No. of earthquakes weighted by intensity in [0, 1] and scaled by distance to the epicenter in 1005–1805	Rovida et al. (2020)
Province-Level		
Provincial-to-Kingdom of Naples Population (1828, 1871, 1911)	Share of provincial population to total population in the Kingdom of Naples' territory	Various sources [2]
Provincial Railway Density (1859, 1871, 1911)	Provincial density of the railway network (km^2)	Ciccarelli and Groote (2017)
Provincial Literacy Rate (1871, 1911)	Provincial rate of literate adult population	Ciccarelli and Weisdorf (2019)
Provincial-to-Kingdom of Naples Public Primary Schools in 1862	Share of provincial public primary schools to total public primary schools in the Kingdom of Naples' territory	DGS (1865)

Notes: (1) Law No. 132 of August 8, 1806, Law No. 272 of December 8, 1806, Decree No. 922 of May 4, 1811, Law No. 570 of December 12, 1816, Marzolla (1832), De Sanctis (1840), MAIC (1864, 1865). (2) MAIC (1865, 1874, 1882). (3) Elaboration on digital cartography. (4) Giustiniani (1797–1805), MAIC (1865, 1874, 1882). (5) Elaboration on EEA's Global Digital Elevation Model (DEM) derived from GTOPO30 with 1 km-by-1 km resolution. DGS stands for Directorate General of Statistics. MAIC stands for Ministry of Agriculture, Industry and Trade. ISTAT stands for Italian National Institute of Statistics. EEA stands for European Environment Agency.

TABLE F2. Descriptive statistics of the dependent and control variables.

Variable	Mean	Std. Dev.	Min.	Max.
Municipality-Level				
Presence of Kindergartens in 1869	0.02	0.15	0	1
Pupils per Inhabitants in 1869	0.00	0.00	0.00	0.03
Total Expenses per Inhabitant in 1884	9.67	6.99	2.09	85.20
Discretionary Expenses per Inhabitant in 1884	0.98	2.00	0.00	30.99
Share of Discretionary Expenses in 1884	0.09	0.11	0.00	0.77
Share of Discretionary Expenses in Education in 1884	0.04	0.08	0.00	0.73
Share of Discretionary Expenses in Infrastructure in 1884	0.12	0.24	0.00	1.00
Presence of a Train Station in 1873	0.05	0.21	0	1
District Capital	0.02	0.12	0	1
Population Density in 1861	130.12	692.85	6.69	21,384.74
Population Density in 1871	136.27	723.40	6.45	22,338.31
Population Density in 1881	141.87	738.27	7.59	22,769.49
Population Growth in 1797–1861	0.57	1.47	-0.86	24.63
Population Growth in 1797–1871	0.66	1.57	-0.86	27.92
Population Growth in 1797–1881	0.75	1.67	-0.86	29.46
Coastal Municipality	0.11	0.31	0	1
Land Surface	32.29	28.78	0.12	431.38
Altitude	455.74	284.76	2.00	1,433.00
Terrain Ruggedness Index	230.45	137.03	1.90	698.74
Latitude	40.87	1.10	37.96	42.86
Distance to the Own Provincial Capital City in 1861	37.57	21.79	3.63	121.73
Distance to the Own Provincial Capital City in 1871	37.57	21.79	3.63	121.73
Distance to the Own Provincial Capital City in 1881	37.57	21.79	3.63	121.73
Expenses to Revenues in 1884	1.25	0.53	0.50	7.96
Province-Level				
Provincial-to-Kingdom of Naples Population in 1861	0.06	0.02	0.03	0.13
Provincial-to-Kingdom of Naples Population in 1871	0.06	0.02	0.03	0.13
Provincial-to-Kingdom of Naples Population in 1881	0.06	0.02	0.03	0.13
Provincial Railway Density in 1861	0.01	0.03	0.00	0.22
Provincial Railway Density in 1871	0.04	0.05	0.00	0.31
Provincial Railway Density in 1811	0.06	0.04	0.01	0.31
Provincial Literacy Rate in 1861	0.18	0.03	0.14	0.32
Provincial Literacy Rate in 1871	0.20	0.03	0.16	0.36
Provincial Literacy Rate in 1881	0.25	0.04	0.20	0.42
Provincial-to-Kingdom of Naples Public Primary Schools in 1862	0.07	0.03	0.03	0.12

Notes: Descriptive statistics are based on 974 municipality-level observations.

TABLE F3. Kindergartens in 1869: correlation matrix of control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
District Capital	[1]	1.00												
Population Density in 1861	[2]	0.01	1.00											
Population Growth in 1797–1861	[3]	-0.01	-0.01	1.00										
Coastal Municipality	[4]	0.09	0.09	0.02	1.00									
Land Surface	[5]	0.40	-0.09	0.04	0.14	1.00								
Altitude	[6]	-0.05	-0.10	-0.03	-0.31	0.13	1.00							
Terrain Ruggedness Index	[7]	-0.03	0.04	0.01	-0.10	0.04	0.52	1.00						
Latitude	[8]	0.00	0.00	0.01	-0.26	-0.03	0.21	0.11	1.00					
Distance to the Own Provincial Capital City in 1861	[9]	0.07	-0.07	0.00	0.15	0.23	0.08	0.21	-0.09	1.00				
Provincial-to-Kingdom of Naples Population in 1861	[10]	0.05	0.08	-0.04	0.04	0.01	-0.31	-0.07	-0.25	0.22	1.00			
Provincial Railway Density in 1861	[11]	0.06	0.09	-0.04	-0.02	-0.12	-0.22	-0.03	0.02	-0.02	0.64	1.00		
Provincial Literacy Rate in 1861	[12]	0.05	0.04	0.03	-0.06	-0.04	0.01	0.06	0.27	0.03	0.28	0.58	1.00	
Provincial-to-Kingdom of Naples Public Primary Schools in 1862	[13]	0.01	0.08	-0.01	-0.03	-0.06	-0.07	0.19	-0.13	0.22	0.75	0.42	0.36	1.00

Notes: Correlation coefficients are based on 974 municipality-level observations.

TABLE F4. Municipal expenses in 1884: correlation matrix of control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
District Capital	[1]	1.00												
Population Density in 1881	[2]	0.01	1.00											
Population Growth in 1797–1881	[3]	0.00	-0.01	1.00										
Coastal Municipality	[4]	0.09	0.09	0.05	1.00									
Land Surface	[5]	0.40	-0.09	0.04	0.14	1.00								
Altitude	[6]	-0.05	-0.10	-0.06	-0.31	0.13	1.00							
Terrain Ruggedness Index	[7]	-0.03	0.03	-0.03	-0.10	0.04	0.52	1.00						
Latitude	[8]	0.00	0.00	0.00	-0.26	-0.03	0.21	0.11	1.00					
Distance to the Own Provincial Capital City in 1881	[9]	0.07	-0.08	0.00	0.15	0.23	0.08	0.21	-0.09	1.00				
Provincial-to-Kingdom of Naples Population in 1881	[10]	0.06	0.08	-0.03	0.06	0.01	-0.36	-0.15	-0.26	0.20	1.00			
Provincial Railway Density in 1881	[11]	0.09	0.05	0.01	0.12	0.01	-0.40	-0.34	-0.17	-0.08	0.43	1.00		
Provincial Literacy Rate in 1881	[12]	0.04	0.05	0.05	-0.13	-0.04	0.09	0.13	0.46	0.04	0.26	0.22	1.00	
Expenses to Revenues in 1884	[13]	0.00	-0.03	0.06	-0.04	0.05	0.07	0.06	0.18	0.06	-0.04	0.03	0.09	1.00

Notes: Correlation coefficients are based on 974 municipality-level observations.

TABLE F5. Train stations in 1873: correlation matrix of control variables.

Variable		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]
District Capital	[1]	1											
Population Density in 1871	[2]	0.01	1										
Population Growth in 1797–1871	[3]	-0.01	-0.01	1									
Coastal Municipality	[4]	0.09	0.09	0.02	1								
Land Surface	[5]	0.40	-0.09	0.03	0.14	1							
Altitude	[6]	-0.05	-0.10	-0.04	-0.31	0.13	1						
Terrain Ruggedness Index	[7]	-0.03	0.04	0.00	-0.10	0.04	0.52	1					
Latitude	[8]	0.00	0.00	0.01	-0.26	-0.03	0.21	0.11	1				
Distance to the Own Provincial Capital City in 1871	[9]	0.07	-0.07	0.00	0.15	0.23	0.08	0.21	-0.09	1			
Provincial-to-Kingdom of Naples Population in 1871	[10]	0.06	0.08	-0.03	0.04	0.01	-0.33	-0.11	-0.25	0.21	1		
Provincial Railway Density in 1871	[11]	0.09	0.05	-0.01	0.08	-0.03	-0.43	-0.35	-0.01	-0.09	0.38	1	
Provincial Literacy Rate in 1871	[12]	0.04	0.05	0.04	-0.10	-0.05	0.04	0.10	0.37	0.03	0.27	0.36	1

Notes: Correlation coefficients are based on 974 municipality-level observations.

APPENDIX G – Mechanism analysis: inference test

This Appendix reports the results obtained by estimating Equation (4) in the main text with standard errors clustered at the district level. Table G1 reports the results for the presence of kindergartens in 1869 and the number of pupils enrolled per inhabitant. Table G2 reports the results for municipal expenses in 1884. Table G3 reports the results for train station endowment in 1873.

TABLE G1. Kindergartens in 1869: standard errors clustered at the district level.

| Dependent Variable | Kindergartens | | | | |
| | Presence | | | Pupils Per Inhabitant | |
Estimation Method	Probit	LPM	IV-LPM	OLS	IV
	(1)	(2)	(3)	(4)	(5)
District Capital	1.895****	0.447****	0.552****	0.003**	0.003*
	(0.423)	(0.124)	(0.151)	(0.001)	(0.001)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959
Pseudo-R^2	0.36	…	…	…	…
R^2	…	0.23	0.22	0.08	0.08
First-Stage F Statistic on Excluded IVs	…	…	12.15	…	12.15
Hansen J Statistic (p-value)	…	…	0.402	…	0.153

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. The dependent variable capturing the number of pupils per inhabitant is based on 1861 population figures. Standard errors (in parentheses) are clustered at the Kingdom of Italy district level. The set of municipality-level controls includes: population density in 1861; population growth in 1797–1861; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1861. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1861; provincial railway density in 1861; provincial literacy rate in 1861; provincial-to-Kingdom of Naples public primary schools in 1862. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE G2. Municipal expenses in 1884: standard errors clustered at the district level.

Dependent Variable	Total Expenses Per Inhabitant		Discretionary Expenses Per Inhabitant		Share Discretionary Expenses		Share Discretionary Expenses in Education		Share Discretionary Expenses in Infrastructure	
Estimation Method	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
District Capital	0.499	1.068	2.291***	2.861**	0.155****	0.171****	0.308****	0.377****	0.191**	0.219**
	(1.415)	(2.507)	(0.739)	(1.232)	(0.037)	(0.044)	(0.067)	(0.061)	(0.079)	(0.096)
Municipality-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of Municipalities	974	974	974	974	974	974	974	974	974	974
No. of Treated Municipalities	15	15	15	15	15	15	15	15	15	15
No. of Control Municipalities	959	959	959	959	959	959	959	959	959	959
R^2	0.26	0.26	0.25	0.25	0.19	0.19	0.40	0.39	0.12	0.12
First-Stage F Statistic on Excluded IVs	…	13.94	…	13.94	…	13.94	…	13.94	…	13.94
Hansen J Statistic (p-value)	…	0.484	…	0.663	…	0.977	…	0.598	…	0.198

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Per inhabitant dependent variables are based on 1881 population figures. Standard errors (in parentheses) are clustered at the Kingdom of Italy district level. The set of municipality-level controls includes: population density in 1881; population growth in 1797–1881; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1881; total expenses to revenues in 1884. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1881; provincial railway density in 1881; provincial literacy rate in 1881. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

TABLE G3. Train stations in 1873: standard errors clustered at the district level.

Dependent Variable	Train Stations		
Estimation Method	Probit	LPM	IV-LPM
	(1)	(2)	(3)
District Capital	1.252**	0.204*	0.312**
	(0.516)	(0.120)	(0.157)
Municipality-Level Controls	Yes	Yes	Yes
Province-Level Controls	Yes	Yes	Yes
1871 *Compartimento* FE	Yes	Yes	Yes
No. of Municipalities	974	974	974
No. of Treated Municipalities	15	15	15
No. of Control Municipalities	959	959	959
Pseudo-R^2	0.29	…	…
R^2	…	0.15	0.14
First-Stage F Statistic on Excluded IVs	…	…	13.95
Hansen J Statistic (p-value)	…	…	0.734

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors (in parentheses) are clustered at the Kingdom of Italy district level. The set of municipality-level controls includes: population density in 1871; population growth in 1797–1871; coastal dummy; land surface; altitude; terrain ruggedness; latitude; distance to the own provincial capital city in 1871. The set of province-level controls includes: provincial-to-Kingdom of Naples population in 1871; provincial railway density in 1871; provincial literacy rate in 1871. The set of excluded IVs includes: within-district centrality in 1806; 1797 state-owned dummy; 1797 bishop dummy; 1797 archbishop dummy; 1797 princedom dummy; population above 5,000 inhabitants in 1797; exposure to earthquakes in 1005–1805.

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